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The Effects of No Child Left Behind Act on North Dakota Career and Technical Education Programs

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THE EFFECTS OF NO CHILD LEFT BEHIND ACT ON NORTH DAKOTA CAREER AND TECHNICAL EDUCATION PROGRAMS

by

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This dissertation, submitted by Jerome Alden Gunderson in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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Title	The Effects of No Child Left Behind Act on North Dakota Career and Technical Education Programs
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Date 7/17/06

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ABSTRACT

The purpose of this study was to research the effects of No Child Left Behind legislation on the enrollment of Career and Technical Education programs in the state of North Dakota. In 2001, the US Congress passed the "No Child Left Behind" legislation. The No Child Left Behind Act (NCLB) has initiated much discussion and forced changes to many public school K-12 programs. The legislation was written specifically to address educational issues related to core academic educational programs such as math, English, science, and social studies.

Career and Technical Education (CTE) programs were not addressed in the NCLB legislation, but as part of the public school systems' programming they have been impacted. Because of NCLB, school districts have allocated increased resources of time and money toward the core subjects and focused more of their efforts to improve school test scores. This shift in emphasis has translated into a deliberate commitment to the NCLB initiative at the expense of other programs.

This study used three sets of data to measure the effects of NCLB on CTE programs. One data set was the number of high school students and teachers enrolled from 1999 to 2005 in North Dakota public high schools maintained by the North Dakota Department of Public Instruction. Another data set collected by the State Department of Career and Technical Education provided information on the number of students, the number and types of CTE program areas, and various subcategories of students enrolled in Tech Prep

and Nontraditional Career initiatives. The third data set was generated by a 14 question survey of 20 North Dakota CTE administrators. This data provided local perspectives on the effects of NCLB at the school district level.

Data results indicate that CTE, Tech Prep and Nontraditional Career initiatives have a positive effect on student enrollment in CTE programs. NCLB has had little or no impact on CTE student enrollment at this time. The data do suggest, however, the impact of NCLB may affect CTE program enrollments in the near future.

CHAPTER I

INTRODUCTION

In 2001 US Congress passed the No Child Left Behind Act, with President Bush signing the bill on January 8, 2002. The No Child Left Behind Act (NCLB) has initiated much discussion and forced changes to many K-12 programs (Phelps, 2003). The legislation was written to address issues in core academic educational programs such as math, English, science, and social studies. Public school elective programs were not written into the legislation; however elective courses have a symbiotic relationship with core academic programs so the elective programs are impacted by any legislation which affects public school systems.

NCLB legislation focused on the four themes: school accountability, more flexibility for states and school districts in the use of federal dollars, more choice for disadvantaged children, and the application of proven teaching methods. The NCLB accountability theme required public schools to initiate schoolwide testing programs. Testing program results are then compiled and compared to all the school districts in the state. Taken from the test score comparisons is a cut score that each test segment is measured against. If the school district students do not score above the cut score average, the school is placed on a probation list. Schools that fail to make Adequate Yearly Progress (AYP) on their testing scores experience further disciplinary actions (North Dakota Department of Public Instruction, 2004).

The AYP process has caused school officials, school administration, and academic teachers to focus more of their effort, time, and resources toward improving student test scores. The basic issue is accountability of schools. The testing process has many shortcomings but one of the effects has been a focus on all students passing a written test. Achieving AYP has forced schools to focus on preparing students to succeed by passing a single assessment tool. Many schools are using their meager resources to support the NCLB testing mandate at the expense of other school programs (Phelps, 2003).

Public schools have revised their curriculum offerings, and reallocated resources of staff time, money, staff development, and educational focus to bolster their academic programs. School administrators may claim that their center of attention has been on core academic areas which are included in the statewide testing mandate. An effect on elective programs was not a part of the intended objective of the federal act; however, due to attention and resources being reallocated toward selected academic programs that must make cut scores for adequate yearly progress, other programs are adversely affected (North Dakota Department of Public Instruction, 2004).

The elective programs of Career and Technical Education (CTE) were not addressed in the initial NCLB legislation. Although this elective area was not part of the original legislation CTE has been affected due to its relationship within comprehensive school system course offerings (Phelps, 2003). CTE programs provide students effective educational alternatives to reinforce reading, math, and science skills that are highly valued in the state assessments. Students succeed in schools due a number of factors, and a sound CTE program is one of them (Daggett, September, 2005).

CTE programs can be the ticket to true economic independence. School reform efforts nationwide have embraced career education as a way to make learning more relevant and to better prepare students for the workplace of the 21st century. School systems have overhauled the vocational school model of the past to include learning about the latest technologies and are increasingly offering innovative programs such as career pathways and industry-sponsored certification programs (Daggett, September, 2005).

Initiatives like School-To-Work programs, career academies, and business and industry internships have provided positive results for students. These results include lower dropout rates, higher student achievement, better grades, and increased postsecondary enrollment (Hughes, Bailey & Mechur, 2001). CTE helps high school graduates achieve better employment rates, higher-paying jobs, and increased job satisfaction. A large degree of this success is due to students being able to recognize that high school course content does relate to potential careers (Daggett, September, 2005). An exit survey of graduates of a Wisconsin Youth Apprenticeship program found that students in their programs were more interested in learning because they were motivated by their own work, and could make the connection between their current education and their future careers (Scholl & Smyth, 2000). Results from studies indicate that CTE programs have a positive effect on the dropout rate. Rasinski and Pedlow (1998) found that success in a CTE might contribute to student's new feeling of accomplishment and a desire to continue to succeed. CTE programs for women may have a positive overall effect on performance in school and serve as an incentive to continue into postsecondary education. Often the training that young women receive in nontraditional fields leads to more career options; CTE can increase their employment opportunities and wages (Scott & Annexstein, 2003).

Staying in school is a key factor in girls' capability to realize high-wage employment. Female dropouts are more likely to be unemployed: 44% of young women without a high - school diploma are unemployed, compared to 35% of young men (Milgram & Watkins, 1994).

The State Department of Career and Technical Education (SDCTE) gathers student enrollment data each year as part of the Carl Perkins Act reporting requirement. These data are part of the federal reporting process to maintain Carl Perkins grant monies. The data are accessible to local school districts but are seldom analyzed for trends. This study's purpose was to gather data, analyze the effect of NCLB on the enrollment in local CTE programs, and reflect on which CTE initiatives are being developed to counteract the pressures exerted by NCLB legislation. CTE programs in schools must make changes in programs to teach standards and deliver content rich in math, science, and English.

Purpose of the Study

The purpose of this study was to examine the effects of the NCLB legislation on the enrollment of elective secondary CTE programs in North Dakota public schools. CTE is not immune from the provisions of NCLB, as the law's requirements affect every sector of the educational systems, not just elementary and secondary academic education. The results of this study may serve as the basis for CTE school administrators' future response to the rippling effects of NCLB on educational programs. The researcher studied enrollment trends in CTE programs with statewide student enrollment, Tech Prep, and Nontraditional Career initiatives in conjunction with NCLB. CTE administrators need to understand the ramifications of NCLB to their programs so they can make changes in order to maintain enrollment, and provide appropriate course offerings to North Dakota students.

The results of this research can be used by local and state educational administrators and state legislators to make appropriate budgetary and programming changes to CTE curriculum.

The enrollment trends of North Dakota public school students targeted in the research were derived from data collected during 1999-2000 to 2004-2005, providing three years of data before and after the passage of NCLB. The SDCTE submits a Consolidated Annual Report (CAR) each year to the federal government as part of Carl Perkins' legislation. The CAR reports are a Local Consolidated Annual Plan (LCAP) which provides state CTE program summaries to the federal government. These informational summaries can be reviewed from the past six years measure the number of students and programs in the CTE departments and provide insight into any CTE enrollment trends.

The LCAP information includes data on many subgroups. The subgroups include 16 program areas (career clusters) as well as the demographics of gender, ethnicity, and social economic status of students that enroll in CTE programs. Each program area (Informational Technology, Technology Education, Family and Consumer Sciences, etc.) trend was analyzed. Another group of statistics was broken down as to the effects of NCLB related to gender, ethnic groups, special population, and other classifications.

The CTE LCAP administrator survey responses provide local insight regarding CTE programs and the effects of NCLB, Tech Prep, and Nontraditional Career initiatives on their secondary school CTE enrollment. The main research question: how has NCLB has affected CTE programs in the state of North Dakota? Other issues to address: Does NCLB affect any particular area of the 16 CTE program areas more than another? Has the

Tech Prep initiative affected enrollment in CTE programs? Has the Nontraditional Career initiative affected the enrollment in CTE programs?

Research Questions

The following research questions were used to guide this study:

1. Is there a difference in the percentage of students enrolled in CTE programs in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?
2. Is there a difference in the percentage of students enrolled in CTE in each of the 16 individual program areas in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?
3. Is there a difference in the percentage of students enrolled in each of the CTE four categories (gender, race, special populations, and other classifications) in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?
4. Is there a difference in the percentage of students enrolled in CTE Nontraditional career classification in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?
5. Is there a difference in the percentage of students enrolled in CTE Tech Prep classification in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?
6. What has been the effect of NCLB on CTE programs as perceived by selected CTE LCAP administrators?

Significance of the Study

According to the State Department of Career and Technical Education Director, Wayne Kutzer (2003), and a review of the literature, there has never been a study of this type completed in North Dakota. Many public school educators agree that the NCLB mandate has had a far-reaching influence on public education. This educational mandate has been the major focus of education since it was signed into effect in 2002. Many articles have been written and countless educational debates have focused on the effects of NCLB on educational systems. Yet there has been little research and study about the effects to elective programs in high schools. The first major focus of NCLB by the educational community has been improving test scores in English and math, with science being addressed later.

This research presents a unique review on the effects of NCLB on elective programs that have been in public education for over one hundred years. The value of CTE programs has been debated over time. There have been many state and federal initiatives that have affected CTE programs. Those CTE initiatives have enjoyed various degrees of success. The CTE initiatives' results are directly related to the varying levels of educational and financial support for the program. The greater the support an initiative receives, the better the success rate (Daggett, October, 2005).

LCAP data often not used by CTE directors provide insight about the growth or lack of growth in programs. The results of this study would be of interest to SDCTE, the CTE local school directors, and school district administration as they develop programs and respond to the demands of the NCLB mandates. If there are any major issues found in

this research, the findings could drive staff development themes and SDCTE initiatives well into the future.

Limitations

This study was limited to North Dakota public school data. The study uses data obtained in the 1999-2000 school year through the 2004-2005 school year. These school years represent three years of data before the passage of the NCLB legislation. The 2002 to 2005 time period provided the most current data after the passage of the NCLB legislation. The focus of the research was limited to CTE elective programs at the secondary level. CTE programs supported by Carl Perkins legislation provide financial support and data gathering for grades nine to twelve in public schools. The survey of LCAP CTE administrators was limited to the 20 largest CTE program schools in the state as measured by the SDCTE Carl Perkins grant allocations. It is limited because most of these districts identify a staff member who is responsible to collect and report LCAP data as well as serve as the CTE administrator.

Researcher bias may result from the researcher's experience as a veteran CTE instructor and a current Director of CTE. As a CTE director for one of the largest school districts in North Dakota, the researcher has 30 years of CTE experience and a stake in the continued success of these programs.

Assumptions

This study made the following assumptions about the data collected.

1. One assumption is that the two state data sets are accurate. The North Dakota Department of Public Instruction (NDDPI) data set is reported to the state by

individual school districts. This data set serves as the basis for foundation aid payments provided by the state to local school districts.

2. The data are assumed to be accurately gathered and entered into the state reporting system. Local CTE programs collect the LCAP data set. The data set from 1999-2000 is skewed due to computer software changes in recording data. 1999-2000 was a transitional period when a paper and pencil system was replaced by a web-based system. During the fall of 2005 the LCAP software system was updated again and it is assumed that the 1999-2000 to 2003-2004 data was uploaded accurately.
3. The third assumption is that the survey questions and the participants' responses represent an accurate picture of the influence of NCLB at the local level.

Definition of Terms

The following terms will support understanding the terminology in NCLB, CTE, Tech Prep, and Nontraditional Career initiatives.

Agricultural and Natural Resources: a career cluster that involves planning, managing, and performing agricultural production, horticulture and landscaping services, and related professional and technical services; planning, managing, and performing mining and extraction operations; managing and conserving natural resources; and performing related environmental services.

Arts, Audio Video Technology and Communication: a career cluster that involves designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services.

Architectural and Construction Trades: a career cluster that teaches about careers in the architecture and construction career cluster involving designing, planning, managing, building, and maintaining the built environment.

AYP: a state's measure of yearly progress toward achieving state academic standards. "Adequate Yearly Progress" is the minimum level of improvement that states, school districts, and schools must achieve each year.

Business and Administration Education: a career cluster that involves planning, organizing, directing, performing, and evaluating business functions essential to effective and productive business operations.

Carl Perkins Acts I (1990), II (1994) and III (1998): federal legislation which provides specific federal assistance for secondary and postsecondary vocational education programs.

Class B and Class A schools in North Dakota: the North Dakota High School Activities Association (NDHSAA) is the governing body for North Dakota high school athletics and fine arts. The state's school systems divide into Class A (larger schools with student enrollment of 325 students or more in grades 9-12) and Class B (smaller schools).

Close Up Fellowship: federal program that pays for economically disadvantaged, middle and secondary school students whose families have moved to the United States within the last five years to spend one week in Washington, D.C., attending seminars on government and current events and meeting with leaders from the three branches of the federal government. The program also supports teacher professional development related to civic education.

Consolidated Annual Report (CAR): a group of reports that are part of the SDCTE annual report to the federal government as required by the Carl Perkins Act.

Constructivism: a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in.

Cross walk: the process of matching CTE standards to math, science and English standards.

CTE Programs: a group of courses that provide students with the knowledge and skills to be successful in the world of work and in their related careers. A minimum of two units of credit must be offered and taught annually within each SDCTE approved career and technical education program (State Board policy since 1984-85).

Cut scores: the point on a score scale that marks the boundary between passing and failing (or some other decision); test takers who score above the cut score pass, and those who score below it fail.

Education of Migratory Children: a federal program to support high-quality and comprehensive educational programs for migrant children for reducing the educational disruptions and other problems that result from repeated family moves.

Education and Training: a career cluster that involves planning, managing, and providing education and training services, and related learning support services, including assessment and library and information services.

Early Reading First: a nationwide effort to provide funds to school districts and other public or private organizations that serve children from low-income families.

Finance: a career cluster that involves providing services for financial and investment planning, banking, insurance, and business financial management.

Free and reduced lunch counts: a federal government method of determining economic need by counting the number of students that qualify for free and reduced lunches.

Government and Public Administration: a career cluster that involves planning, managing, and providing government legislative and administrative and regulatory services and related general purpose government services at the federal, state, and local levels.

Health Sciences: a career cluster that involves planning, managing, and providing diagnostic, therapeutic, supportive, and information and research services in health care.

Hospitality and Tourism: a career cluster that involves planning, managing, and providing lodging, food, recreation, conventions, and tourism, and related planning and support services such as travel-related services.

Human Services: a career cluster that involves tending to families and to human needs.

Improving Literacy Through School Libraries: a federal program designed to improve the literacy skills and academic achievement of students by providing them with access to up-to-date school library materials; technologically advanced school library media centers; and professionally certified school library media specialists.

Informational Technology: a career cluster that involves the design, development, support, and management of hardware, software, multimedia, and systems integration services.

Law, Public Safety and Security: a career cluster that involves planning, managing, and providing judicial, legal, and protective services.

Manufacturing: a career cluster which teaches students the concepts of design, planning, material selection, machining, fabrication and construction of products.

Marketing Sales and Services: a career cluster that involves planning, managing, and performing wholesaling and retailing services and related marketing and distribution support services including merchandise/product management and promotion.

National Assessment of Title I: the National Assessment of Title I is a coordinated set of evaluation studies that collect information on the implementation and impact of Title I. The law directs the NATI to examine a number of specific issues, including the impact of Title I programs on student achievement, state standards and assessments, accountability and school improvement provisions, school choice, and supplemental services, professional development, and teacher quality, comprehensive school reform and improvement strategies, and the targeting of Title I funds.

Nontraditional Training and Employment: occupations or fields of work, including careers in computer science, technology, and other emerging high skill occupations for which individuals from one gender comprise less than 25% of the individuals employed in each such occupation or field of work.

Prevention and Intervention Programs for Children and Youth Who Are Neglected, Delinquent, or At-Risk: a federal program aimed to provide financial assistance to educational programs for youths in state-operated institutions or community day programs.

Reading First: a federal initiative aimed at helping every child, in every state to become a successful reader by the end of third grade.

School to Work Opportunity Act of 1994: the act was intended to facilitate the education and career preparation of young people during their formative secondary school

years, expanding pathways to post-secondary education, productive work, and self-sufficiency. The Act specifies three kinds of opportunities: school-based learning oriented to high academic standards; work-based learning leading to industry-recognized credentials; and connections between school-based and work-based learning, through career majors and applied or experiential learning.

Science, Technology, Engineering and Mathematics: a career cluster that involves planning, managing, and providing scientific research and professional technical services (e.g., physical science, social science, and engineering) including laboratory and testing services, and research and development services.

Tech Prep Program: provides links between secondary and postsecondary education that include articulation and/or dual credit opportunities for courses that are rigorous, sequential and nonduplicative.

Tech Prep Student: any high school student who has earned two or more credits in an identified North Dakota Tech Prep program.

Transportation, Distribution and Logistics: a career cluster that involves the planning, management, and movement of people, materials, and goods by road, air, rail, and water, as well as related professional and technical support services such as transportation infrastructure planning and management; logistics services; and mobile equipment and facility maintenance.

Transition to Teaching: a three-year alternative teacher preparation program that focuses on individuals who already have baccalaureate degrees in the content areas or who are entering teaching from industry or the military with specific technical skills.

Participants complete the requirements for teacher education and full licensure through a planned program of seminars and university courses while they teach.

William F. Goodling Even Start Family Literacy: a federal initiative that provides low-income families with integrated literacy services for parents and their young children (birth through age 7). The purpose of the program is to break the cycle of poverty and illiteracy for low-income families. The basic premise behind Even Start's family literacy approach is that the four components of adult education, early childhood education, parenting education, and interactive literacy activities for parents and their children build on each other and that families need to receive all four services in order to bring lasting change and improve children's school success.

Vocational Education: an older term associated with Career and Technical Education.

Summary

This study is organized into five chapters. Chapter I provided introduction and overview of the effects of NCLB legislation on North Dakota public high school student enrollment in CTE programs. Chapter II examines the current literature. The review of literature includes information about the development of NCLB and CTE programs. The literature review also includes issues relating to NCLB and CTE programs as well as CTE initiatives of Tech Prep and Nontraditional Career populations. Chapter III provides the methodology of the study. Chapter IV presents the research findings of the study in tabular and narrative form. Chapter V includes a summary, discussion, limitations, conclusions, and recommendations for educators and future research.

CHAPTER II

REVIEW OF LITERATURE

No Child Left Behind Act

"The No Child Left Behind Act of 2002 is a landmark in education reform designed to improve student achievement and change the culture of America's schools" (U.S. Department of Education, 2002, p. 9). The law was created in response to President George W. Bush's statement that commitment to educational excellence forms "the cornerstones of my administration....These reforms express my deep belief in our public schools and their mission to build the mind and character of every child, from every background, in every part of America" (U.S. Department of Education, 2002, p. 9).

NCLB passed with support from both political parties. At the center of the legislation are four key concepts: school accountability, more flexibility for states and school districts in the use of federal dollars, more choice for disadvantaged children, and the use of proven teaching methods. The NCLB act emphasizes reading, improvement in the quality of teachers, and requires that all children learn English. The passage of NCLB was a reauthorization of the Elementary and Secondary Education Act (ESEA), which affects every educational title program (U.S. Department of Education Executive Summary, 2001).

History of No Child Left Behind Act

In order to understand the basic concepts of the current NCLB legislation a review of recent history of the federal government's role in education is necessary. In 1965 the federal government passed the first Elementary and Secondary Education Act (ESEA) legislation. The early education legislation was part of President Johnson's war on poverty (Chubb, 2002). ESEA developed out of political compromise. After President John F. Kennedy's assassination, Johnson decided to respond to civil rights pressures and religious conflicts over education by linking education legislation to his War on Poverty program. This act provided federal support for K-12 education to poor communities and their schools. The 1965 law marked a historic federal intervention into local public schools (Rudalevige, 2006).

According to Spring (2004), the ESEA had at least three major consequences for future legislative action. First, it signaled the switch from general federal aid to education towards categorical aid, and the tying of federal aid to national policy concerns such as poverty, defense, or economic growth. Second, it addressed the religious conflict by linking federal aid to educational programs directly benefiting poor children in parochial schools, not the institutions in which they enrolled. Third, the reliance on state departments of education to administer federal funds (promoted to avoid criticisms of federal control) resulted in an expansion of state bureaucracies and larger involvement of state governments in educational decision-making (Schugurensky, 2002).

ESEA was amended in 1968 with the passage of Title VII. Title VII legislation resulted in the Bilingual Education Act, which offered federal aid to local schools districts

to assist them to address the needs of children with limited English-speaking ability (Laitsch, 2003; Schugurensky, 2002).

Many other federal education reforms have been created over the past 20 years aimed at addressing America's educational issues. One reform began in the 1980s with the election of Ronald Reagan (Hadley, 2004). During his terms in office, President Reagan commissioned a task force called the National Commission on Excellence in Education, which first met in August of 1981 (Chubb, 2002). The commission created a report highly critical of the nation's educational system entitled *A Nation at Risk*. The report, published in April of 1983 with findings and recommendations, focused on four important aspects of the educational process: content, expectations, time, and teaching (National Commission on Excellence in Education, 1983).

The *Nation at Risk* report critically addressed the national educational system. The report sparked debate on how to improve our schools and thereby student achievement. These debates served as the impetus for educators who concluded that schools need to apply proven teaching methods while being held accountable for student success; to achieve these goals they needed greater control over resources and increased flexibility. These concepts became the foundation to the development of NCLB (Jorgensen & Hoffman, 2003).

Nation at Risk proved the beginning of an evolution in achievement testing and standards-based education reform. During this time the United States experienced an economic recession that resulted in drastic spending cuts in education (over 21%), but President Reagan influenced public education through other means (Hadley, 2004). Reagan rejected the idea of national standards and left the work of creating academic

standards to the states, resulting in the variety of state educational standards currently in place. Each state began implementing reform measures aimed at defining a basic core of knowledge that students were expected to master at certain grade levels (Chubb, 2002; Hadley, 2004).

President George H.W. Bush continued Reagan's educational reform measures. In late 1989, President Bush assembled a National Education Summit for state governors. The summit established six broad educational objectives that were to be completed by 2000. These national objectives included language supporting educational standards for state and local entities. In addition, Bush created the National Education Goals Panel to monitor and report on the progress made toward meeting the six objectives (Rudalevige, 2006).

President Clinton renewed support for the National Education Summits objectives. His administration called its own educational legislation the Improving America's Schools Act (IASA). The Clinton administration contributed to the underpinnings of NCLB with the reauthorization of ESEA, now entitled IASA of 1994. In fact, the 1994 reauthorization provided the guiding principles for developing content and performance standards; for creating assessments aligned with those standards in at least one grade in each of the three grade spans: three through five, six through nine, and 10 through 12; and for establishing an accountability system. Later in 1998, a new educational initiative was launched called Goals 2000: Educate America Act, which contained many of the accountability and testing provisions found in NCLB (Hadley, 2004; Rudalevige, 2006).

The Goals 2000 initiative, passed in April 1998, required states and local school districts to establish a framework of comprehensive, standards-based education reform for all students. The IASA provided additional support, and the School-to-Work Opportunities

Act (STW) helped build additional pathways to enable all children to meet challenging state standards (Burns et al., 2000). The Improving America's Schools Act focused on changing the way schools delivered education and encouraged systemic school reform through improving staff development with a focus on high standards, increasing accountability, and encouraging the management of resources to improve educational opportunities for all children. IASA caused educators to focus on four concepts: "1) high standards for all students; 2) teachers better trained to teach to high standards; 3) flexibility to stimulate local initiative coupled with responsibility for results; and 4) promoting partnerships among families, communities, and schools" (Burns et al., 2000 p. 125). Although timelines were established for certain standards, there were no real consequences for not achieving them; thus, most states ignored the act. When the Republicans won control of Congress in 1994, the Clinton administration hesitated to enforce the law's sanctions and never withheld funds from states that failed to meet the act's timelines (Hadley, 2004).

By the mid-1990s, federal influence on educational programs had developed many concepts and themes that are found in today's NCLB legislation. Two elements that President George W. Bush added to the educational reform package included accountability and enforcement. The original President Bush NCLB plan introduced in January of 2001 was only 28 pages long; the final legislation grew to approximately 700 pages (Hadley, 2004; Rudalevige, 2006).

NCLB was designed to help all students meet high academic standards by requiring state educational systems to create annual assessments that measure children's abilities in reading and math in grades 3 through 8. These written tests based on state standards permit

educational stakeholders to track the performance of every school. Data are categorized by students' poverty levels, race, disabilities, and English proficiencies, ensuring accounting for every child. The federal government provides assistance to help states design and administer these tests (U.S. Department of Education, 2002; Maine School Boards Association, & Maine School Superintendents' Association, 2004).

Annual school report card results provide information on the quality of schools. The reports provide information for parents to make choices about their children's education. These report cards not only indicate how well students are doing on meeting standards but also the progress that disaggregated groups are making in closing achievement gaps. School districts and individual schools that do not make sufficient adequate yearly progress (AYP) toward state proficiency goals for their students experience increasing outside interventions. The interventions begin with an assistance program for the school; from there the failing school is subject to more corrective actions, and ultimately school restructuring. Schools that meet or exceed objectives are eligible for academic achievement awards (Laitsch, 2003; US Department of Education, 2006; South Dakota Parent Resource Network, 2003).

The trade-off for higher accountability is that states and school districts are allowed greater flexibility in how they can spend federal education funds. The federal educational title dollars are distributed as block grants that permit school systems to decide where the money would be most effectively spent at the local level. The NCLB act permits school districts to use federal funds to address issues of hiring new teachers, increasing teacher pay, and improving teacher training and professional development without acquiring special permission (Shibley et al., 2004; U.S. Department of Education, 2002).

Parents of children in low-performing schools are given new options with NCLB legislation. If a school fails to meet AYP standards two or more consecutive years these parents have the option to transfer their children to better-performing public schools. The legislation even stipulates that the original school has the responsibility of providing transportation for students. Parent choice however, is limited to schools in their district, which may include public charter schools. Students from low-income families have even more options. If their school fails to meet state AYP standards for at least three consecutive years, special services must be provided by the school system. These supplemental educational services include tutoring, after-school services, and summer school. NCLB legislation goes further in supporting special interest groups who may want to create charter schools. NCLB also contains language stipulating that students have a choice of schools based on a school's safety record (Maine School Boards Association, & Maine School Superintendents' Association, 2004; U.S. Department of Education, 2002).

NCLB options are based on the accountability provisions that schools must provide to students, parents, and the community. AYP test scores allow parents to compare schools. The school choice and extra educational services are designed to improve student learning but also serve as an incentive for low-performing schools to improve. Schools that want to avoid the loss of students and the consequences of restructuring will work hard on improving their AYP scores (Delisio, 2002; Laitsch, 2003; U.S. Department of Education, 2002).

Another component of NCLB emphasizes the employment of educational programs and practices that have a proven track record. Federal funding focuses dollars on programs and teaching methods that improve student learning and achievement. An

example of this requirement is the reading instruction programs found in the early grades under the new Reading First program, and in preschool the new Early Reading First program. Federal monies are available to help teachers further reinforce already effective teaching strategies, as well as learning new skills in reading instructional techniques. Other federal title funds are directed to after-school programs that have a demonstrated ability to prevent drug use and violence among youths (U.S. Department of Education, 2002).

Effects of No Child Left Behind Act on School Systems

The key requirements of the NCLB, which have the most effect on school systems include student assessments, accountability, providing highly qualified teachers, and school improvement. The assessment provision requires schools to test students at least three times during the student's school career. These assessments must be aligned with state educational standards of the core academic courses of mathematics, reading/language arts, and science. Students with limited English and disabilities are required to be tested as well under strict guidelines. Schools must provide reasonable accommodations for students with limited English speaking ability, including native-language versions of the assessment as well as providing for students with disabilities. Annual assessments of English proficiency ensure that districts administer tests of English proficiency to all students with limited English (Shibley et al., 2004; South Dakota Parent Resource Network, 2003; U.S. Department of Education, 2002).

Student assessment results are required to be disaggregated by gender, major racial and ethnic groups, English proficiency, migrant status, disability, and status as economically disadvantaged. The assessment system reporting requirements include individual student interpretive, descriptive, and diagnostic reports. State assessment

reports include itemized score analyses for districts and schools. The results are reported to the stakeholders in a timely manner that is easy to understand and to use. Lastly, states must participate in biennial National Assessment of Educational Progress (NAEP) assessments in reading and mathematics for fourth- and eighth-graders (Laitsch, 2003; U.S. Department of Education, 2002).

The NCLB accountability requirement is long and complex. Each state must develop and implement a statewide accountability system. This accountability system must be effective in guaranteeing that all districts and schools make adequate yearly progress. Schools that do not make AYP suffer increasingly stiffer sanctions designed to improve student achievement and school performance. School AYP scores are the cornerstone of the accountability system. The state standardized tests are scored on a scale known as a cut score, developed by each state. Each year the cut scores rise until 2014 when 100% of all students must meet proficient levels. The identification of schools and districts in need of improvement requires that states must annually review the AYP progress of each school and school district receiving Title I funds. These scores are published, and schools that fail to meet AYP for two consecutive years must be identified as in need of improvement (Shibley et al., 2004; South Dakota Parent Resource Network, 2003; U.S. Department of Education, 2002).

Based on AYP scores, schools that are identified as in need of improvement are required to adhere to an increasing number of sanctions. One of the sanctions is the right of parents to transfer their children to another school if the school AYP scores do not make the cut score. Another sanction stipulates the school must spend at least 10% of their Title I funds on professional development for their staff. Supplemental educational services are

provided to students if a school fails to make AYP for three consecutive years. Low-income families have the option to obtain supplemental educational services; they can even be provided transportation to the services using Title I dollars. If a school has not made AYP in four years it faces stern corrective actions that include replacing staff, major curriculum changes, and potential loss of local control. If the school does not make AYP for the fifth year a total restructuring of the school will occur which begins with an approved improvement plan. The restructuring can include reopening the school as a public charter school, replacing all or most of the school staff, which may include replacing the principal, enter into a contract with an entity such as a private management company with a demonstrated record of effectiveness, operating the school as a public school, or other major restructuring. Major restructuring may also include implementing any other restructuring of the school's governance that makes fundamental reform in governance and management, including financing and material resources and staffing (Maine School Boards Association, & Maine School Superintendents' Association, 2004; U.S. Department of Education, 2002).

Other sections of NCLB include provisions for technical assistance to struggling schools. These schools are identified through the use of state and school district report cards. Report cards provide stakeholders with information about the state school system as well as the individual school districts. There is also a requirement to provide an annual report to the U.S. Education Department's Secretary of Education on the progress of the state's education system. Another section of the law defines requirements for highly qualified teachers and paraprofessionals that teach core subjects. NCLB identifies core academic subjects as English, reading or language arts, mathematics, science, foreign

languages, civics and government, economics, arts, history, and geography (U.S. Department of Education, 2002).

The following list summarizes the expectations and key activities placed on the state and local school systems. State education agencies (SEAs) must:

- Produce an annual report card.
- Develop and implement annual assessments in reading, language arts, and mathematics in grades 3-8 and at least once in grades 10-12, by 2005-06.
- Develop and implement standards in science by 2005-06 and assessments in science by 2007-08.
- Annually assess the English proficiency of students who are learning the English language.
- Ensure the prompt dissemination of state assessment results.
- Participate in biennial state-level NAEP assessments of fourth-grade and eighth-grade reading and mathematics.
- Define and implement an adequate yearly progress definition for the state, school districts, and schools.
- Annually review each school district's progress to determine whether schools receiving assistance are making adequate yearly progress and whether each district is carrying out its responsibilities; SEAs also must publicize the results of this review.
- Establish a statewide system of support for districts and schools in need of improvement.
- Establish a program for making academic achievement awards to schools that significantly close the achievement gap or exceed adequate yearly progress for two or more years.
- Publish and disseminate to parents and the public information on any corrective action taken by the state.
- Develop a list of approved providers of supplemental educational services and support, monitor, and disseminate information about these providers. SEAs must consider faith-based organizations as potential providers of supplemental educational services on the same basis as other eligible entities.

- Ensure that students in schools previously identified for improvement under the IASA provisions are offered school choice and, if the school had been identified for two years or more, supplemental services at the beginning of the 2002-03 school year.

- Ensure that schools provide instruction by highly qualified instructional staff. (U.S. Department of Education, 2002)

In the original 620-page long document of NCLB law a number of programs are identified that affect schools (Shibley et al., 2004). These programs include: Reading First; William F. Goodling Even Start Family Literacy; Improving Literacy through School Libraries; Education of Migratory Children; Prevention And Intervention Programs For Children And Youth Who Are Neglected, Delinquent or At-Risk; National Assessment Of Title I; Close Up Fellowship; and others. This extensive list of programs affects schools in a number of ways. The first issue to be addressed is the sheer number of programs that schools are required to manage; school officials must become experts on large volumes of information. Secondly, it requires time, energy, money and staff to create meaningful and systematic change. Most public schools struggle with limited resources of money, staff, and time, so they often must make choices on how to allocate those resources. A new educational mandate like NCLB forces schools to make choices on how to reallocate their limited resources to address the requirements of the law, often at the expense of existing programs (Shibley et al., 2004).

North Dakota Department of Public Instruction (NDDPI) maintains a Web site containing many documents related to the state's educational system (2005). One of those documents is The North Dakota Accountability Application Workbook, detailing the many school programs affected by NCLB. The 79-page report, written in June of 2005, provides current updates to the federal government about North Dakota's progress in meeting

NCLB requirements and addresses many of the programs mentioned in the previous paragraph.

All major educational reforms have groups of supporters and dissenters. Since the passage of the NCLB many supporters quote data which tout the positive effects of the legislation on the nation's educational system. The U.S. Government of Education Web site posts many articles and information about the progress of NCLB. Many articles have been written about the accountability requirements of NCLB. NCLB requirements stipulate that school systems and parents are to be provided educational information and support that they need in order to focus attention and resources on the children who need it most. NCLB provides more flexibility for states and communities in how they spend their federal funds. It is possible for school districts to transfer up to 50% of the federal grant funds they receive to support programs that the school district identifies as area of need. Funds can shift within Improving Teacher Quality State Grants, Educational Technology, Innovative Programs, and Safe and Drug-Free Schools Programs as the local school district sees fit, or to a Title I program, without seeking separate federal approval (National Federation of Republican Women, 2005).

One of the major components of NCLB is the school's responsibility to ensure that every child is learning. If the child is not learning, the law provides parents new options that may include free tutoring. Another provision is assessment data that provide insight to teachers on which teaching methods improve classroom instruction. Schools identified as needing improvement receive extra resources to raise student achievement (U.S. Department of Education, 2006).

The Nation's Report Card (NAEP) results, released in July 2005, showed elementary school student achievement in reading and math at all-time highs and a closing gap in achievement for minorities. America's nine-year-olds posted the best scores in reading (since 1971) and math (since 1973) in the history of the report. America's 13-year-olds earned the highest math scores the test ever recorded. Reading and math scores for African American and Hispanic nine-year-olds reached an all-time high. Gaps in reading and math achievement between white and African American nine-year-olds, and between white and Hispanic nine-year-olds, are at an all-time low. Across-the-board improvements were made in mathematics and in fourth-grade reading. African American and Hispanic students posted all-time highs in a number of categories (U.S. Department of Education, 2002).

President Bush's 2007 budget request includes funding increases above 2001 levels for education programs. The budget lists a 29% increase in total Federal education funding (from $42.2 billion in 2001 to $54.4 billion in 2007). There is a 33% increase in total K-12 funding (from $27.3 billion in 2001 to $36.3 billion in 2007). The request calls for quadrupled funding for reading (from $286 million in 2001 to $1.2 billion in 2007, a 300% increase) (U.S. Department of Education, 2002).

Current U.S. Education Secretary Margaret Spellings points out that NCLB has made American schools improve and continue to improve as the act progresses. Spellings writes:

> Three years ago, President Bush made a commitment to provide a quality education for every child and to close the achievement gap that plagued our schools and society. The president has delivered on his promise—thanks to *No Child Left Behind*, our nation's schools are making great strides toward ending the soft bigotry of low expectations and ensuring that all children have the opportunity to learn. But

> the job is not done. In the 21st century, education is not confined to the four walls of the schoolhouse, and learning does not end when students are handed their diploma. (Spellings, 2005, p.12)

NCLB dissenters have noted complaints about many of the provisions written into NCLB. The leading complaint is the lack of federal funding of the act. Many authors note that the act is an unfunded mandate and the funding promised has not been delivered (Delisio, 2002). Senator Edward Kennedy claimed that President Bush failed to follow through on certain promises. "This budget is a severe blow to our nation's schools," said Kennedy. "Just four weeks after the president signed the education bill into law, the administration's budget cuts the funding for it. Instead of moving forward into the future, this budget steps backward into the past" (Hadley, 2004, What Bipartisanship section, para. 9).

In August 2003, Representative George Miller of California issued a report called *Broken Promises*, which accused the Bush administration of failing to fund the law. On January 9, 2006, Miller issued a statement, "Americans who value education can tell a bait-and-switch when they see one." In November 2003, Senator Kennedy also said, "We passed the NCLB because we trusted them. But they stiffed us. They broke their promise. They tried to cut funding for public school reform. They want to drive money to private school vouchers" (Hadley, 2004, What Bipartisanship section, para. 8).

Other authors see structural problems with NCLB that they claim threaten the entire U.S. public school system. The structural issues relate to the methods that schools must develop in order to meet the requirements of NCLB. The requirements for meeting 100% proficiency by 2014 for every child are unrealistic. Another complaint about NCLB is that it really is an effort to push for vouchers. President Bush's original version of NCLB

contained a voucher provision that was met with resistance. Political parties reached a compromise by creating the current requirement of parents' choice of school provided their current school is placed on the need of improvement list (AFT Teachers, 2004; Hadley, 2004).

Dee Allen, a former member of the Matawan-Aberdeen Regional Board of Education in New Jersey, believes that the standards and reporting are positive for schools and for public education. "I think there are so many things locally that pull board members away from curriculum and forming policy that they lose their focus. Often boards are pulled off task because of the demands of negotiations or financial concerns or other practical matters. There is a need for academic standards that act as a guideline for boards" (Hadley, 2004, Problems with Implementation section, para. 6).

Another issue with the NCLB is lack of practicality. The lofty ideals of the law are becoming impossible for schools to attain. Many school officials agree that the expectation of 100% proficiency for all students by 2014 needs to be tempered with practicality (Hadley, 2004; Laitsch, 2003). "The goal of the law is to make sure every child becomes educated. The reality of the situation is that some will not make it. We are trying to make sure that all who can, will get there," commented Abdul-Malik Ali from the Trenton, New Jersey, school board of education. "We have no problems with the concept of NCLB. The question will be, what happens in 2014 when all the children can't make it" (Hadley, 2004, Ideals Tempered with Practicality section, para.1)?

With federal funding, however, comes an unprecedented increase in federal mandates and sanctions. The act's mandates, placed on states to increase testing, ensure a highly qualified teacher in every classroom, and hold schools accountable for the

performance of all students, are associated with much harsher penalties. For example, the state is permitted to replace school personnel responsible for the failure to make AYP, extend the school day or school year, change the curriculum, or restructure the school, and reopen it as a charter or under private management (National Conference of State Legislatures, 2006).

Complying with the requirements of NCLB is a challenge if states want to continue receiving federal funding for education. Federal money accounts for about eight percent of a state's education budget; most states cannot afford to forfeit this money. Educators agree with many of the concepts written into the NCLB legislation and prior to its implementation many school districts had been inserting standards-based accountability measures into their education system for well over a decade. The issue they have with NCLB is that it requires states to make changes that are more substantial and meet overly optimistic deadlines (AFT Teachers, 2004; Laitsch, 2003; National Conference of State Legislatures, 2006).

No Child Left Behind Act and Career and Technical Education Programs

The value of state assessments is unquestionable, but they cannot be viewed as the definition of academic excellence. Unfortunately, many people use them as the definition. When student assessment is seen as the goal or finish line, the test itself becomes a barrier to high levels of student achievement (AFT Teachers, 2004). Instead, if curriculum, instruction, and relevant learning become the focus, the assessment piece will not be an issue (Daggett, September, 2005). NCLB places heavy emphasis on effective instruction and accountability. Educators have known for a long time that the most effective learning

occurs in the elementary grades (Daggett, September, 2005). There are several reasons for this statement; one is that elementary teachers provide interdisciplinary instruction. They are at once the English, science, and math teacher, so there are no distinct course boundaries, and they can integrate their instruction across curricular lines. Elementary teachers also spend a great deal of time with the same students. This concentration of student-to-teacher interaction leads to a corresponding depth in student knowledge. Younger students are much more enthusiastic to learn and are not afraid to ask questions. Working together, these factors lead to the optimum teaching moment when the student is engaged in learning and most likely to learn (Daggett, September, 2005).

In the typical American high school, students take classes from subject area experts. Subject expert secondary teachers focus teaching their course materials independent of other subjects and teachers. Students move from one subject to another without much continuity (Harris, 1991). Students often disengage from school because they do not see the connection between what they are learning and their lives or futures. Subject specialists often try to cover too much material in too little time, producing frustration in students. Students rarely have the opportunity to connect what they learn in one class to what they learn in another. Students seldom have the time to explore information or concepts for themselves (Daggett, September, 2005; Harris, 1991).

Daggett, (October, 2005) wrote about the solution to the challenge of NCLB to engage students.

> Career and Technical Education (CTE) programs provide the most effective learning opportunities. Not only are students applying skills and knowledge to real-world situations in their CTE programs, but also they are drawing on knowledge learned in their core subjects. Students who participate in CTE programs should be well prepared for state exams because of the academics they

> are taught. The key is to tie those academics to core content areas. Students learning will increase if they can connect theory to what they are learning. Students with all types of learning styles benefit when they are challenged with real world applications. In this respect, CTE teachers can be a great help to language arts, math, and science teachers by reinforcing the skills and concepts that students learn in those subjects. (Daggett, October, 2005, p. 5)

NCLB focuses on students improving their math, science, and language arts skills; educators must provide instruction that addresses the student's needs. Educators know students bring with them many different aptitudes, interests, and learning styles. Some students want to know "why we are studying this today?" while others learn for the sake of learning; still others are in school because of a special interest like the arts or sports. Schools must offer many opportunities so students can find what motivates them. Success in a CTE program motivates students do well in their academics (Daggett, October, 2005).

Many people have begun to believe that the AYP requirement results in schools spending more curriculum time and educational resources dedicated to core academic courses in math, science, and English language arts. The reality is that less time and resources are available for programs like CTE. "This reaction is understandable but wrong" (Daggett, October, 2005, p 3).

Elective programs like CTE should be enhanced and viewed by schools as alternative methods for students to improve their AYP scores. CTE programs have always addressed students' differences in aptitudes, interests, and learning styles, especially challenging students to succeed (Shepard, 2000).

CTE programs can use the NCLB accountability theme to its advantage, benefiting its students as well, provided CTE programs stay consistent with the needs of the world of business and industry. Secondly, they must be sure to focus on the relevance and rigor to

match the state assessments through teaching the knowledge and skills their students need to be successful (Office of Career and Technical Education, 2004).

Today's workplace is driven by technology and information. The workers of tomorrow must be able to apply all their academic and knowledge skills to solve the problems they will encounter in a fast-paced and demanding workplace. Daggett, (October, 2005) writes, "It is the responsibility of every educator – including CTE educators – to help all students to achieve the proficiency levels required under NCLB" (p. 3). To reach AYP benchmarks, educators must internalize the issues at hand (the why), use data-driven decision making to determine new program directions (the what), and use models of best practices to implement the required changes (the how). NCLB is an opportunity that must be seized to ensure not just CTE's full participation in the broader education process, but also CTE's continued acceptance, credibility and success" (Daggett, October, 2005).

Career and Technical Education

This section focuses on defining the CTE program; the role it plays in K-12 education, and the perspective of students, parents, community, teachers, and administration. It also discusses curriculum, standards, advisory committees, and local, state and federal requirements as they relate to the study and application of NCLB and CTE programs.

The following quotes explain the CTE department's role in education. These quotes represent the mission of CTE within the context of education.

> The overall purpose of education is to prepare people to perpetuate and improve the society in which they live. An educational program in any nation must be related to its political, social, and economic way of life. That

> is particularly true in the case of career and technical education. The National Association of State Directors of Career Technical Education Consortium indicated that Career Technical Education is provided in a variety of settings and levels including middle school career exploration, secondary programs, postsecondary certificates and degrees, and customized training for employees in the workplace. Career Technical Education also provides students and adults (1) the technical skills and knowledge necessary to succeed in occupations and careers, (2) the cross-functional or workplace basics necessary for success in any occupation or career (such as problem solving, teamwork, and the ability to find and use information) as well as skills for balancing family and work responsibilities, and (3) the context in which traditional academic skills and a variety of more general educational goals can be enhanced. (McCaslin & Parks, 2002, p.13)

The CTE Department is a group of funded courses:

> that includes rigorous academic content closely aligned with career and technical subject matter, using the State learning standards of career development and occupational studies as a framework. In grades nine through twelve, career and technical education includes the specific disciplines of agriculture education, business and marketing education, family and consumer science education, health occupations education, technical education, technology education and trade/industrial education. (University of the State of New York State Education Department, 2003, Part 100 of the Commissioner's Regulations section, para.1)

Mr. Wayne Kutzer (2003), Director of the SDCTE, posts the following passage on the North Dakota State Department Career and Technical Education (SDCTE) website:

> Career and Technical Education is an essential component of the total educational system in North Dakota and is critical to our New Economy. CTE not only provides technical skills and knowledge for students to succeed in careers, but also cross-functional workplace skills such as teamwork, problem solving, and the ability to find and use information, and provides the context in which traditional educational goals and academic skills can be enhanced. (Kutzer, 2003)

The CTE department provides dozens of distinct titles of courses taught by certified staff members. Over 32,700 students are enrolled in CTE classes each school year (Consolidated Annual Report, 2005). Courses range from Auto Mechanics to Health

Careers to Word Processing. Courses are grouped by scope and sequence, allowing students the freedom to choose as their interests and needs dictate. CTE courses range from exploratory in nature to career specific, for example: ranging from Life Skills as a Family and Consumer Science course, to the Networking classes that prepare students to take the Cisco Certified Networking Associate certification exam.

Each year the SDCTE files a report to the federal government as part of the Carl Perkins Act. A section of the report includes a narrative summary of the philosophy of Career and Technical Education programs.

> A sound career and technical education program must be concerned with the academic and technical skills of students upon completion of the offering. The program must also recognize the needs of the individual for more than job-entry skills. Compatible skills of math, sciences, communication, decision-making, learning to learn, personal and occupational responsibility, educating students in all aspects of industry, and linking secondary and postsecondary are equally important and equally within the purview of career and technical education. These "true salable skills" and the individual's capacity to transfer them regularly and usefully to their work and life needs, require career and technical education to emphasize the total education of the individual.
>
> The uniqueness of career and technical education, then, is in its capacity to not only prepare for further education or work, but to enable individuals to develop the human "change and coping skills" which are essential to occupational mobility and personal success over the long term of a working life. (Consolidated Annual Report, 2004, p 5)

The History of Career and Technical Education

The federal government has supported vocational education (CTE) since the Hughes Act of 1917. In the early 1900s, schools were focused on preparing students for college. The early vocational schools were housed in separate buildings and prepared their students to be successful in vocations and careers. Since then vocational education has been isolated from academic programs found in high schools, a persisting public attitude

that CTE served students "better suited to [application] than academic learning" (Neumark, 2004, p. 9). In the public mind, this meant that students who do not fit the academic profile of the college-bound would become CTE students (Neumark, 2004).

One of the themes of America's educational history for the masses is that our grandparents obtained an elementary education (Hillison, 1996; Howell, 2003). Our parents became high school graduates, and today's generations are expected to earn college degrees. "Since the 1950s, a high school diploma has changed from a 'valued asset' in the labor market to a 'minimum requirement' to access jobs or further education" (Rosenbaum, 2001 p. 245). In the last fifty years, part of the American dream includes every son or daughter completing college. As a result, our secondary school system is structured toward preparing students to succeed in college. The courses and the method of instruction in high schools operate under the premise that every student is going to be a college student. Labor experts agree, however, that a college degree does not guarantee career success (American Vocational Association, 2002).

Statistics prove that the United States labor market needs only about 30% of its work force to earn a college degree; author Hecker (2001, p. 57) comments:

> Even today, most jobs do not require a college degree. Of the total job openings between 2000 and 2010, the Bureau of Labor Statistics (BLS) projects that 70 percent will require no postsecondary education. An additional 9 percent will require an associate's degree or postsecondary vocational award. Only 21 percent will require a bachelor's degree or higher.

Other authorities agree that the educational system is preparing students for the wrong careers.

> Many of these highly paid non-college jobs fall into one of the major occupational categories used by the U.S. Department of Labor: precision, production, craft, and repair occupations. Only managerial and professional

> occupations exceeded these occupational groups in their 1999 weekly earnings. In addition 'technicians and related support occupations,' many of which do not require a college degree, had the next highest median earnings. (Cohen & Besharov, 2002, p 9)

Not only do schools provide the wrong high school education for many students, but this is amplified for subgroups, particularly minorities, and women. Gray (1995 Problems with the Present Vocationalism section, para. 5), a proponent of a revitalized CTE based on preparation for two-year colleges argues, "the nation needs technicians, not a flock of discontented young adults who hold worthless baccalaureate degrees and have no job prospects." Ilg and Haugen (2000) also note, "women, African Americans, and Hispanics are all underrepresented in these occupational groupings" (p. 91).

Currently public schools focus on preparing every student for college. This does not fit with the labor market's needs for which only 30% of the workforce requires a four year college degree. The school system needs to prepare the remaining 70% of students for careers that business and industry require. The school system is mired in a rut of college preparation rather than career preparation. The American school system needs to focus its attention in terms of career education (Hecker, 2001).

The Purpose of Career and Technical Education

The American educational system must think in terms of careers for many reasons. Lowering school dropout rates, proper course selection, course curriculum, financial consideration, students' self-esteem, lifelong learning, and careers as personal definitions of self are some of the reasons to focus on career preparation philosophy rather than college preparation (American Vocational Association, 2002).

If students understand that education is not a series of disconnected courses but rather a part of the process of preparing them for a career, the number of student dropouts in high school and postsecondary schools may be reduced. Many students become frustrated with school because they see the curriculum as not relevant to them and their goals. "Many of these young people may be unsuited for college: by ability, temperament, or interest" (Cohen & Besharov, 2002, para. 1).

> The educational system and the American society must realize that the changing work force has been one of the most extraordinary and significant challenges facing the U.S. today. The work force has become increasingly diverse, and these population changes will continue for many years. Demographic changes have been away from the European-American male and toward an increasingly diverse and segmented population, including men and women of all races, ethnic backgrounds, ages, and lifestyles. This change in the work force included more people of diverse sexual/affectional orientations and religious beliefs, and different physical abilities that needed to work together effectively. (McCaslin & Parks, 2002, Diverse Clientele section, para. 1)

Students need to be provided with the data, information, and knowledge to make career choices so they can plan their high school course work and prepare for their future. Career choices could include military, technical school, college, or job experiences. Not only would this provide students with a direction and a goal, but they would also develop a feeling of self-worth through this program. One of the issues that Newman (2004) raises is that students need to feel valued by their community. Mann (McCaslin & Parks, 2002) would agree with the concept of equality and opportunity for all students. Career education, due to the leveling effect of career focus, provides an equal opportunity for all students independent of race or gender as opposed to the elitism of college prep.

The public educational system is designed to prepare students for their future. Educators discuss the role schools play in the development of students as individuals; and

there is no doubt that public schools are more than academic factories. Bloome (et al., 1989) explains that there is much more going on in the classroom than just presenting materials for learning; it is "the construction of a social system (p. 272)."

The college-bound culture for the American school should be replaced with a career-bound culture; both students and America's labor market would benefit. This process would require both school system and societal change. Bloome (et al., 1989) said it well: "culture is acted and public (p. 272)." The change to career prep begins within the school system; Bourdieu (1973) says that the social reproduction mechanism is a powerful force in education. Combining social learning with educational concepts is not new to education. Dewey (1938) advocated, "education should prepare students for a lifetime of learning using social activities as its center (p.36)." Therefore, teachers must be prepared in general education and in professional education courses related to students' activities. "Teachers of agriculture, business, family and consumer sciences, and marketing have been prepared congruent with Dewey's concepts" (McCaslin & Parks, 2002, p. 21). The CTE department's program can prepare students for their futures (ACTE Online, 2006).

CTE courses rely on hands-on, activity based learning. Students are engaged in course content and curriculum that they learn by experiencing concrete real world applications. Vygotsky (1978) theorized that cognitive development occurs largely from the outside inward. Cognitive development occurs in children's interactions with the others. Vygotsky recognized that "cognitive development depends as much on social and other environments as it does on maturation, and that it occurs continuously, rather than in stages (p. 35)." This means a career preparation program must be developed that spans many grade levels.

Constructivism, a popular psychological concept, contends that people create meaning through their interactions and experiences in their social environments. It presumes that a student's prior knowledge and experiences play a significant role in learning and form the basis for subsequent actions. It focuses the learner's attention on the "why" of learning and opens the door to critical thinking and intellectual development (Manus, 1996). CTE programs develop curriculum based on this concept. CTE programs develop their curriculum based on the skills and knowledge required by business and industry occupations and careers (ACTE Online, 2006).

Spring (2004) noted that schools increased a community's wealth through a concept called human capital. Human capital is a "society's resource of people educated and trained to produce the goods and services that the society requires (p. 21)." Comprehensive career guidance and counseling program prepare students who are focused on careers, thereby increasing the society's human capital. School systems can create deliberate and systemic career guidance and counseling programs so students will match their abilities and aptitudes to potential career clusters. The results is that students do not make false starts in college but enter directly into the job market, technical college, or military without squandering time and money in semesters or years of trial and error (Joann Quick, personal communication, June 12, 2002).

CTE programs provide several distinct advantages for students. CTE classes are activity based and generally smaller in class size. In this environment, students can take advantage of increased individual time with their teacher and study a content area. In repairing an automobile or creating a house plan, students experience a positive feeling about themselves, increasing their self-esteem.

Over the past three years the SDCTE of North Dakota has been revising and creating CTE program standards. These standards include curriculum cross walks (matching CTE standards with academic core standards) with math, science, and English standards. The real challenge is to implement the standards across the state in a systematic and deliberate manner so that all CTE students benefit from quality CTE programs. In order to address the issues raised by NCLB, CTE programs must prove their worth. They can prove to the educational community that CTE programs can support NCLB requirements through their ability to help students pass core area assessments through CTE programs that are rigorous and appropriate (Kutzer, 2005).

Through the use of community advisory committees, job-shadowing experiences, apprenticeships, and internships, the business community is able to connect with these students. Another feature the CTE program provides is student organizations. These student clubs provide students with leadership training and group experience with like-minded students (Grand Forks Public School Career Education, 2004).

Career Education Within Career and Technical Education

A thorough career guidance and counseling program encompasses a comprehensive K-12 program. Students, parents, teachers, administration, community members, local businesses, and industry members, state and federal educational departments all play a role. The program may be delivered as a comprehensive guidance program with school and career counselors and teachers playing the primary role. School administration, local business, and industry would play a secondary function for the program. They would provide resources such as program support through speakers, job site

experiences, and internship positions (Grand Forks Public Schools Career Education, 2004).

Career education provides students and parents with a host of benefits. Students and parents feel more connected to the school. The individual opportunities for students to interact with community members provide them a feeling of self-worth. One or two exposures to career planning are not enough – human beings need multiple exposures to a concept before they begin to understand it (Quick, 2002). The program provides avenues for students to explore careers in a safe and supportive environment (Grand Forks Public Schools Career Education, 2004).

Teachers are a key element in the school system; they play a pivotal role in any educational culture. The Interstate New Teacher Assessment and Support Consortium reports that "an effective teacher must be able to integrate content knowledge with pedagogical understanding to assure that all students learn and perform at high levels" (Council of Chief State School Officers, 2002, p. 6). Teachers provide an equalizing effect in schools for all students. Academic teachers tend to focus on core content. The core classes focus on the mechanics of reading, writing, solving math problems, and observing physical reactions. In the CTE classroom students read technical manuals to learn how to repair a car, in programming class they need to follow syntax and structure of the programming language or the programs does not run, in carpentry the measurements must add up, and in Family and Consumer Sciences, the cake needs to be baked properly.

Teachers must supply relevant materials to students and relate the material to life long skills and future careers. Teachers need to answer the eternal question: "Why do we need to learn this stuff?" It also implies that excellent teachers are needed in order to move

the educational process forward; but there is more: these teachers need to understand that they have power to make changes. Counts (1978) notes, "teachers should deliberately reach for power" (p. 26). Counts believes it is the teachers' duty to be change agents.

The curriculum must connect students to the world of work. Students sit for hours in the classroom practicing "procedural display" (Bloome et al., 1989, p. 266) because the teacher has not made the lesson relevant to the skill and knowledge the students need to in order to be productive members in today's labor market. Counts (1978) observed that "the greatest tragedies of contemporary society [lie] in the fact that the child is becoming increasingly isolated from the serious activities of adults (p. 15)." Counts further writes that the educational system needs to "support the use and study of technology as a method for the survival of democracy (p. 42)." He was not referring to computer technology at that time, but today's schools must embrace, invest in, and apply the latest technology in the education to provide the knowledge and skills students will need to be successful in their careers. Schools must also invest in staff development, and state-of-the-art hardware and software for both teachers and students.

CTE programs are required to maintain Program Advisory Committees consisting of members from the local business community. The committee's mission is to provide the CTE program with advice, technical support, and insight on current trends from the business perspective. This system provides local input on content that the CTE teachers deliver, providing information that the student can use for a career in a local business (Wayne Kutzer, personal communication, August 8, 2005). The result is a win-win situation that Spring (2004) alludes to when he writes, "business depends on the quality and expertise of workers (p. 27)."

Federal control of CTE programs is through a grant program called the Carl Perkins Act III. The Carl Perkins III grant distribution regulates funds based on a formula that includes the number of children ages 5-17 living in the school district, and the number of free and reduced lunch counts. The SDCTE provides the local school district an allocation amount. The local school district in return submits an annual plan, which may or may not be approved at the state level on how those dollars are spent. The local school district then spends the dollars on the approved plan. Near the end of the school year, the local school district submits payment requests with supporting documentation of the expenditures (NDSDCTE, 2005). This process is laden with both state and federal mandates. The Carl Perkins III legislation provides guidelines on what is approved and the state CTE supervisors add their own interpretation of the federal guidelines (Quick, 2002).

Site-based management teams add to teacher responsibilities but provide for ownership of their programs. For example Grand Forks Public School CTE program, each teacher manages his or her curriculum, teaching materials, and budget. Each department has input on class scheduling and budget (Gruwell, 2005). The responsibility of managing CTE adds an extra burden to the teachers' workload but the expectations were explained to them before they began teaching, and they understand the uniqueness of their position (Quick, 2002). The first two years most teachers tend to focus on content mastery. The next three years are spent learning to manage students and in practicing their professional craft (Gruwell, 2005).

The process to add courses to a CTE program must follow both local and state guidelines. Reviewing new course proposal processes used by Grand Forks Public School

in North Dakota is another example of local control of the CTE programs. When the CTE department wishes to change, add, or drop a course, several distinct groups provide their input. The CTE teachers play a small but important role; they can suggest a course change. The CTE director and teacher review and discuss the course change, which includes conferring with the school districts' assistant superintendent and the North Dakota State Department of CTE. If there is a course title, unified course code, and course description, then the course proposal moves to the local school district's Curriculum Review Committee. The review committee meets to discuss the merits of the course proposal and either approves or rejects the course. If the course is accepted then it is brought to the Grand Forks Public School (GFPS) Board, which either approves or rejects the course proposal (Ron Gruwell, personal communication, October 12, 2005). If the course is rejected at any point along the process the concept is either dropped or further studied and revised for re-submission the next school year.

The curriculum review process provides a number of checks and balances to guarantee that one group does not drive the course content. Even with the input of the business and industry, the local teacher, curriculum review committee, state department of CTE and the NDDPI still have control over the subject and content of the CTE curriculum (Wayne Kutzer, personal communication, January 19, 2006).

NDDPI works with the SDCTE on course offerings and MISO3 course numbers. Once again, local and state influence is seen; there are pros and cons to this system. The advantages include confidence that the courses offered are appropriate and of quality. The major disadvantage is the amount of time required for a proposed course to be approved. In the best-case scenario the course approval process takes a year; realistically the process

takes two years. The first year is often spent reviewing, planning, and developing the course proposal; the second year the course will be locally reviewed and if passed will be included in the course offerings to students (Gruwell, personal communication, November 6, 2005).

Teacher certification is always an issue in education. In CTE, two licensing venues exist. The North Dakota Education Standards and Practices Board (ESPB) is in charge of granting teacher licenses based on college degrees including a student teaching experience. The second type of licensing, for CTE teachers, is Vocational Certification. Business or industry experts can be hired to teach vocational classes. These staff members can be issued a two-year provisional vocational teaching certificate to begin teaching with stipulations they must meet. Within those two years, they must take a series of five university courses in order to apply for a five-year vocational teaching recertification. An alternative method to the five university course process is a program called Transition to Teaching. This seminar-based mentor program spans one school year. The five university courses' content are reformatted in a series of weekend seminars. The Transition to Teaching model is delivered in a cohort, weekend, and learn-practice-reflect process (North Dakota State Department of Career and Technical Education, 2003). During CTE teacher preparation:

> several themes are used to ensure that the career and technical teacher education program is coherent across all of its courses. These themes include cultural competence, gender equity, academic and technical skill integration, content relevance, accountability and assessment, educational technology and distance education, and life-long professional development. (McCaslin & Parks, 2002, p 47)

Once a CTE teacher is trained and begins teaching, sociological issues that can affect their career need to be considered. Spring (1998) writes that "teachers spend too much time on clerical, administrative chores, baby-sitting, and security details and counseling children. Teachers feel isolated in their classrooms and often complain about the lack of recognition and respect (pp.224-225)." These issues are powerful factors in teacher burnout.

Spring (2004) discusses Multicultural Education in his book *American Education.* Within the NDSDCTE system exists a program called Career Education. Part of the NDSDCTE Career Education program includes a staff member who is responsible for gender equity and cultural diversity education. Over the past four years the Grand Forks Public Schools (GFPS) Career Education department has worked to provide opportunities for students and teachers to consider nontraditional career options. Part of the focus is to break down gender barriers so students will choose careers that fit their interests and abilities (Deb Huber, personal communication, September 5, 2005).

GFPS has developed a nontraditional career program. One of the program's events is CTE Departmental Switch Days that permit students in male dominated Tech Ed classes and female dominated Family and Consumer Sciences to switch classrooms for a day in an effort to increase the students' awareness of their career opportunities. Other nontraditional activities include field trips where students can experience nontraditional career options in the community. Students tour technical colleges and businesses in order to view nontraditional careers. Other grant sponsored activities include nontraditional forums with panels made of female firefighters and male daycare providers, male hair dressers, female engineers, and male nurses (Axvig, 2005).

The following quote best describes the efforts of CTE programs to adjust to the ever-changing U.S. career environment.

> As the U.S. transitioned from an agriculturally dependent economy to an increasingly industrial one, career and technical education has and will continue to play an important role in responding to these challenges through its educational programming. This willingness to adapt to new needs is now being applied as the nation moves to a knowledge-based economy. Among the new developments in career and technical education are career clusters, career pathways, career academies, exemplary programs and promising practices, and accountability and assessment. (McCaslin & Parks, 2002, p. 32)

Career preparation, as an embedded curriculum, provides students with the information, knowledge and skills that allow them to focus time and energy toward a career goal. CTE programs, coupled with a sound career education program, can provide curriculum and deliver courses that benefit all students, and can be an equalizer in providing student opportunities so they are able to maximize their potential (Mark Wilson, personal communication, March 19, 2004).

CTE educators should be at the forefront of high school reform. Recommendations for high school reform involve systematic change and restructuring. CTE programs have much to offer in helping make high school an experience that will provide all students the foundation for future education and training and multiple career options (Daggett, October, 2005; Imel, 2000).

One method for CTE programs to address those issues is the SDCTE standards effort. Over the past three years the SDCTE of North Dakota has been revising and creating new CTE program standards. These standards include curriculum cross walks (matching CTE standards with academic core standards) with math, science, and English standards. This an excellent method to address issues raised by NCLB. The real challenge is to

implement the standards across the state in a systematic and deliberate manner so that all CTE students benefit from quality CTE programs. In order to address the issues raised by NCLB, CTE programs must prove their worth to the educational community. CTE programs can support NCLB requirements through their ability to help students pass core area assessments by means of CTE programs that are rigorous and appropriate (Kutzer, 2005).

CTE stands with one foot planted in education and the other foot rooted in business and industry. CTE can serve as the bridge to provide opportunities for all students to prepare for their future. A comprehensive career education program can provide the knowledge students need to make good career choices (Wilson, 2004).

In North Dakota, CTE programs are delivered to students in three formats. Some schools provide CTE programs as a segment of their comprehensive school program. Other school systems share services through a consortium program. These Carl Perkins consortiums are generally a group of schools that have united to benefit from Carl Perkins grant dollars. They share very little other than a common LCAP administrator who applies for the grant and distributes Carl Perkins grant funds among the participating school districts. The third system is CTE Area Centers. In this configuration students are bussed to a central location where the Area Center provides CTE programming (Kutzer, 2004).

Two important CTE initiatives are the Tech Prep and Nontraditional Careers programs mandated by the federal government through Carl Perkins funding. These initiatives are reported by school administrators to the federal government in the Consolidated Annual Report (CAR) (Wilson, 2004). These two initiatives are addressed in this research project because of their potential to affect enrollment in CTE programs. Both

initiatives are addressed by defining their role and purpose within CTE. A short history of each initiative as well as their current role in CTE programs follows.

Nontraditional Career Initiative

The term Nontraditional Training and Employment is defined within the Carl D. Perkins Vocational and Applied Technology Education Act of 1998 as "occupations or fields of work, including careers in computer science, technology, and other emerging high skill occupations, for which individuals from one gender comprise less than 25 percent of the individuals employed in each such occupation or field work" (South Central Service Cooperative, 2004, p.53). CTE programs are historically very gender specific. Male students make up over 90% of the students in Auto Mechanics, Building Trades, Informational Technology, Technology Education, Welding, and Drafting. Female students make up more than 90% of the students in programs for education and training in nursing assistants, childcare, cosmetology, and secretarial training. The difference in career choices by gender tends to concentrate females in training for careers with low salaries, while males enroll in courses with higher paying job opportunities (Flansburg, 1992). A 1998 survey of 14 STW sites found that more than 90% of girls were clustered in five programs that prepared them for jobs in the traditionally female fields of health, teaching, graphic arts, and office technology (National Women's Law Center, 2001). These careers tend to pay less than male dominated fields.

The History of Nontraditional Careers Initiative

The legislated history of nontraditional training and employment can be traced back to the early 1970s. Title IX of the Education Amendments of 1972 prohibits any federally funded education program or activity from engaging in gender discrimination.

Title IX also states that: "no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of or be subjected to discrimination under any education program or activity receiving Federal financial assistance" (U.S. Department of Labor. 1972, Section 1681. Sex, para a).

ESEA Title IX, written to address gender discrimination, is very broad and applies to almost all elementary and secondary schools, colleges, and universities because they receive some type of federal funding. Most CTE programs are part of the school system, receive federal assistance though Carl Perkins grants, and therefore are included in Title IX requirements. Starting in the 1970s, Congress allocated funds through education legislation to help states eliminate gender bias in CTE. In 1976, Title II of the Education Amendments, which provided funds for vocational education, set aside $50,000 per state to fund a full-time employee. The employee was known as the gender equity coordinator. Part of the gender equity coordinator's job was to coordinate plans to overcome gender stereotyping in CTE (National Women's Law Center, March, 2001).

In 1984, Congress approved the Carl D. Perkins Vocational Education Act (Perkins I), which increased funding for a state gender equity coordinator position to $60,000 (National Women's Law Center, 2001).Perkins I also set aside 3.5% of federal CTE funds for programs to promote gender equity in CTE. In 1990, Congress reauthorized Perkins I as the Carl D. Perkins Vocational and Applied Technology Education Act (Perkins II), which required that 3% of federal CTE funds be used for gender equity programs. This led to program development that provided a range of services including career guidance and counseling; childcare, transportation and tuition assistance; mentoring; and job training, development, and placement (National Women's Law Center, March, 2001).

Congress reauthorized the Carl Perkins law again in 1998. That law, known as 'erkins III, eliminated funding, and significantly reduced the number of provisions that ncouraged gender equity or provided services for displaced homemakers and single arent students. This occurred in a Congressional atmosphere favoring decreased federal egulations for educational programs (National Women's Law Center, March, 2001).

Perkins III (1998) removed the set-aside funding for gender equity programs and he full-time state employee responsible for coordinating gender equity programs; however 'erkins III did provide two funding programs to support women and girls in CTE, with the ollowing requirements:

- States must reserve $60,000-$150,000 of state leadership funds to provide services to students pursuing nontraditional training and employment.
- Stat s have the option of reserving 10% of the funds allocated for local school districts based on certain criteria and may require the local agencies to use these funds to support programs for single parents, displaced homemakers, and students pursuing nontraditional training.

Currently Perkins III requires states to report student participation and completion of vocational and technical education programs that lead to nontraditional training and employment. This reporting is included in the LCAP data that local and state jurisdictions must provide the federal government as regulated by Carl Perkins III (Scott & Annexstein, 2003).

Researchers found early efforts to eliminate sex-role stereotyping were somewhat successful in raising awareness of the gender bias problem. Overall female enrollment did

increase in CTE programs but there is still a lack of progress in the area of nontraditional enrollments in postsecondary career tracks (Robbin, 1992).

How Nontraditional Career Initiative Affects CTE

School reform efforts nationwide have embraced career education as a way to make learning more relevant for students and better prepare them for the workplace of the 21st century. School systems have revamped the vocational school model of the past to include learning about the latest technologies, and are increasingly offering innovative programs such as career pathways and industry-sponsored certification programs (Daggett, September, 2005).

Initiatives like STW programs, career academies, and business and industry internships have provided positive results for students. These results include lower dropout rates, higher student achievement, and better grades, and increased postsecondary enrollment (Hughes, Bailey & Mechur, 2001). CTE has helped high school graduates achieve better employment rates, higher-paying jobs, and increased job satisfaction. A large degree of this success is due to students being able to recognize that high school course content does relate to potential careers (Daggett, September 2005). An exit survey of graduates of a Wisconsin Youth Apprenticeship program found that students in their programs were more interested in learning because they were motivated by their own work and could make the connection between their current education and their future careers (Scholl & Smyth, 2000).

Research results supply evidence that CTE programs have a positive effect on the dropout rate. Rasinski and Pedlow (1998) found that success in a CTE course might contribute to a student's new feeling of accomplishment and a desire to continue to succeed.

CTE programs are important for women because they provide positive personal experiences. CTE experiences may contribute to a rise in student performance in school. The long term effect may serve as an incentive to continue into post secondary education. Often the training that young women receive in nontraditional career fields leads to more career options; CTE can increase their employment opportunities and wages (Scott & Annexstein, 2003). Staying in school is a key factor in the capability of girls to realize high-wage employment. Female dropouts are more likely to be unemployed: 44% of young women without a high school diploma are unemployed, compared to 35% of young men (Milgram & Watkins, 1994).

The six of the top occupations that are projected to grow the fastest over ten years (1998-2008) are nontraditional for women: computer engineers, computer support specialists, systems analysts, database administrators, and desktop publishing specialist. This means that women can improve their career opportunities and salary by considering entering these occupations (Bureau of Labor Statistics, 1999).

Women working in nontraditional fields typically earn 20% to 30% more than their counterparts in traditionally female dominated fields. The gap widens for female high school graduates who do not go on to college; they earn approximately 27% less than their male counterparts (Kerka, 1999). The type of training program that a female student enters is critical to determining the wages that she will earn in the workplace. Other studies confirm that women and girls are much more likely to be found in CTE programs feeding traditionally female fields (Scott & Annexstein, 2003).

A study conducted of Wisconsin's STW programs found that female students were concentrated in just a few programs. A majority of females (81%) enrolled in health or

finance programs. The result was that female graduates of the STW program earned about $2 less per hour than their male peers (Scholl & Smyth, 2000). When females enter nontraditional CTE programs, evidence suggests that they are treated differently and not provided with an equal opportunity to learn. A study found that 71% of male teachers believed that male students were more interested in computer technology, and were more likely to attribute boys' success in technology to talent, while dismissing girls' success as due to luck or diligence (Milgram & Watkins, 1994).

Females in nontraditional CTE programs are rare and the isolation they face may result in unequal treatment or harassment. One study showed that 75% of female nontraditional students found that being the only girl was difficult and that they were subjected to hostile environments from both teachers and male classmates (Gray, Palladino et al., 1995).

In public schools female students frequently select CTE courses for the same reasons they choose not to enroll in math and science courses. Parents and their students often choose CTE classes that place them in traditional, sex-segregated classes. The reasons females choose the classes they do include wanting to be with their friends, fear of sexual harassment, teacher expectations, tracking and counseling. Another reason is the lack of female role models. A shortage of nontraditional female instructors in nontraditional careers affects student choice, too (Flansburg, 1992).

The Nontraditional Career Initiative in North Dakota

Currently, SDCTE provides grant opportunities for local school districts to support local nontraditional career activities. The total statewide grant amount is $60,000. Every North Dakota CTE program is eligible to apply for the grant. The Nontraditional Career

grants are awarded based on a competitive process to support local nontraditional career initiatives. This allows the local CTE programs to develop activities that encourage nontraditional enrollment that is adapted to their school's needs. One of the SDCTE responsibilities is to conduct thorough CTE program evaluations every five years. The evaluation process is based on twelve program standards. One of the 12 standards is specific to nontraditional initiatives. The annual LCAP data is used to measure nontraditional progress (Huber, 2005).

Tech Prep Initiative

The Tech Prep program is an initiative written into the Carl Perkins Act of 1990 that was developed to facilitate CTE students in becoming more successful in their post-high school experiences. Tech Prep courses are a scope and sequence of courses that lead the student to either direct employment or postsecondary training programs. The number of students enrolled in Tech Prep courses is tracked in the local LCAP reporting system. One of the potential benefits to school districts' CTE programs in supporting a Tech Prep initiative is increased student enrollment due to students' and parents' perceived value in taking the CTE courses (Wilson, 2004).

The Tech Prep Education Act of 1990 was implemented to strengthen education programs for youth who may not earn a four-year postsecondary degree. The federal government at the time responded to a concern expressed by employers that students they were hiring lacked social and technical skills required to succeed in even the most basic of jobs. This concept, coupled with the issue that many occupations do not require a four-year degree but do require technical training, served as the impetus for the development of the Tech Prep program. The goals of Tech Prep legislation are to:

- prepare students for promising careers;
- improve the quality of both academic and career and technical education and enhance effectiveness of preparing students for careers by more closely integrating them; and
- improve education for the "neglected majority," those students in the middle quartiles who would most likely finish high school but were unlikely to complete a four-year post-secondary education program. (Arizona Tech Prep, 2005, History of Tech Prep)

The term Tech Prep, defined in the Carl D. Perkins III Vocational and Applied Technology Education Act of 1998, means a program of study that:

- Combines at least 2 years of secondary education (as determined under State law) and 2 years of postsecondary education in a nonduplicative sequential course of study;
- Strengthens the applied academic component of vocational and technical education through the integration of academic, and vocational and technical, instruction;
- Provides technical preparation in areas such as engineering technology, applied science, a mechanical, industrial, or practical art or trade, agriculture, a health occupation, business, or applied economics;
- Builds student competence in mathematics, science and communications (including through applied academics) in a specific career field, and to high skill, high wage employment, or further education, and
- Leads to an associate degree or a certificate in a specific career field and to high skill, high wage employment, or further education. (American Vocational Association, 2002)

Some authors define Tech Prep as a program of study that students follow beginning with high school CTE programs and transitioning to postsecondary education as part of an overall plan in preparing for a career. Other authors identify Tech Prep as a national initiative linking CTE programs offered at the high school level to degree and certificate programs at the postsecondary level (Arizona Tech Prep, 2005).

The History of Tech Prep Initiative

Over the past 20 years, many changes have occurred in education. Educators are rethinking the ways in which students learn, affecting the way teachers teach. Educational trends that affect education include textbook publishers writing books designed to address the needs of both concrete and abstract student learners. Another trend indicates that students learn best when they are engaged with cognitive and manipulative skills. Another educational trend is that all students are expected to reach the same level of academic skills as college-bound students (Dutton & Pedrotti, 1996).

Some authors claim the original concept for Tech Prep came from the thinking of Dale Parnell (1985). In Parnell's book, *The Neglected Majority*, written in 1985, he proposed that high schools and community colleges should cooperate to create a high quality education for ordinary students. This neglected majority of students would follow a program that provides them a two-year experience in high school followed by a two-year experience in an associate degree program. This structure would provide substance and educational excellence to assist the 70% of students who do not need a four-year college degree.

Tech Prep requires secondary and postsecondary institutions to coordinate their curriculum and collaborate on a regular basis. Parnell (1985) thought that schools were neglecting the learning styles and academic needs of the majority of their students. The schools focused on the college-bound student at the expense of the majority of schools students (Harnish et al., 2002).

In the early 1980s an educational initiative called Applied Academics was developed. These were applied academic courses involving hands-on, laboratory-intensive

learning in language arts, mathematics, biology, chemistry and physics. CTE teachers and academic teachers attended staff development and learned from each other how to improve the educational experience for a wider group of students' learning styles (Dutton & Pedrotti, 1996).

In the 1990s, Tech Prep was developed as an extension to the Applied Academics program. Educators knew that the neglected majority of students were best served by creating a program for them. If the college-bound students had a program of study that prepared them for transition to college, then those students that were not college-bound should have the same opportunity. Students who need technical training should have a program of study as well (Dutton & Pedrotti, 1996).

Federal support for Tech Prep began with the 1990 Carl D. Perkins' Vocational and Applied Technology Education Act, Title II, Part E. The initial Tech Prep funding was for articulation of programs integrating two years of high school and two years of college ("2+2" programs) (Neumark, 2004). Later, Tech Prep became a seamless, 2+2+2 educational program that exists between secondary and postsecondary schools. This concept was based on two years of high school course work, two years of community college study, and two years at a university, resulting in a university degree if the student so chooses. Tech Prep schools must be physically close to each other so the stakeholders can communicate and develop the process for the students. This model serves students well who are heading for a certification, associate degree, or the possibility of college (Dutton & Pedrotti, 2004).

In 1994, federal STW legislation was written. The program focused on resources to develop a program to allow students to transition from school to work directly or through

training programs that prepare students for work. The STW program extended the successful fundamentals of Tech Prep and challenged the CTE curriculum to become a broad-based curriculum reform effort by expanding Tech Prep programs to include all providers of education. This expansion included grades K-16 and incorporated workplace learning into the academic arena (Dutton & Pedrotti, 2004).

The 1990 Carl Perkins Act was extended through 1998 (Perkins II), although funding for some programs, such as consumer and homemaking education and student guidance services, was dropped. Reauthorization of the Perkins Act of 1998 (Perkins II) eliminated all programs except Tech Prep from Title II (Neumark, 2004).

Currently the combined initiatives of Tech Prep and STW have expanded to most school districts across the country. These initiatives involved the efforts of local schools, and community, business and industry partners. The groups' efforts were supported throughout the educational community by the cooperative action of educators, parents, students, employers, and community leaders (Dutton and Pedrotti, 2004).

How Tech Prep Initiative Affects CTE

A Web site hosted by San Joaquin Delta College in California (2006) summarizes the current concepts of Tech Prep well. Students participate in a high school program that includes technical skills and applied academics. There are four primary areas of Tech Prep:

1. Career exploration career path intended to prepare students for high-skill technical occupations by linking high school and college education with future employment. Students investigate future careers to map out a plan.
2. High school applied courses give a different approach to teaching core academic subjects through hands-on activities. Students learn through doing – labs, fieldwork, and other activities.
3. Dual credit college courses provide students the opportunity to receive high school and college credit for specific courses that have been approved. These

classes are taught at the high school, and upon completion students may apply to receive credit and a grade on an official San Joaquin Delta College transcript. This creates a smooth transition from high school to college.

4. College program of study provides students the opportunity to finish their course of study at community college, or transfer their credits to a four-year college.

The benefits for students of this Tech Prep program include:

- An alternative to college prep;
- Students prepare to live and work in a technological society;
- A wide variety of career choices and opportunities;
- Hands-on training and education;
- Workshops to increase knowledge in stated career or occupation; and
- Students prepared for lifelong learning – to continue to take classes and attend training. (San Joaquin Delta College, 2006, What are the benefits for students?).

In 1994 STW allocated more than $1.5 billion to support increased career preparation activities in the nation's public schools. STW was designed as a "comprehensive and coherent system to help its youths acquire the knowledge. skills, abilities, and information about and access to the labor market necessary to make an effective transition from school to career-oriented work or to further education and training" (H. R. 2884, 103rd Congress, School-to-Work Opportunities Act of 1994). STW funds aimed at general School-To-Careers (STC) programs and activities to serve all students. The purpose was to help guide students into careers that they could enter immediately following high school or with additional vocational or technical education. The concept included those students destined for higher education at four-year institutions. The three core goals of STW were to increase:

- school-based initiatives such as career awareness activities and career links to academic curriculum;
- work-based activities such as job shadowing, internships, and apprenticeships; and
- connecting activities, such as the development of partnerships between high schools and employers and postsecondary institutions.

STW programs and Tech Prep were very similar in their concept for improving education for all students. Tech Prep and STW have been referred to as the "most exciting initiatives in education in decades" (Hull & Parnell, 1991, p. 1). "Indeed we can look upon the advent of these two strategies as an Educational Renaissance, a rebirth of quality, standards and ability." The opportunity, as well as the challenge is for TP + STW to be the major part of the educational reform presently taking place. As former President Bush said, 'The days of the status quo are over.' Bush's statement, plus America 2000 by U.S. Secretary of Education Alexander (1991), and the *SCANS Report* (U.S. Department of Labor, 2001) by U.S. Secretary of Labor Martin (1991), document Alexander's (1991) statement that "we are talking about a revolution in education" (Beaumont, 1999 Tech Prep-A Working Definition, 2).

The Tech Prep Initiative in North Dakota

Currently in North Dakota Tech Prep and STW still exist. The federal funding for STW has ceased but Tech Prep still continues to be granted federal funding. Presently North Dakota receives about $350,000 per year to support the Tech Prep program (Kutzer, 2003). In its current configuration the state is divided into four geographical regions. Each region is staffed by a Tech Prep coordinator and is governed by a Tech Prep

Advisory Board. The following vision, mission and program statements are posted on the North Dakota CTE Tech Prep website (Tech Prep, 1-3):

> Vision Statement: Tech Prep in North Dakota will build a unified, integrated system of quality education to support meaningful career development for students that addresses current workforce demands and encourages lifelong learning.
>
> Mission Statement: Tech Prep supports, promotes, and encourages quality educational programs and innovative delivery methods that link secondary and postsecondary education, employers, and communities to ensure a skilled and educated workforce.
>
> Tech Prep Programs: Tech Prep programs provide links between secondary and postsecondary education that include articulation and/or dual credit opportunities for courses that are rigorous, sequential, and non-duplicative.

The focus of the Tech Prep program is driven by four broad goals. The goals are:

> Goal 1: Enlist the support and participation of North Dakota secondary and postsecondary institutions in developing, supporting, and promoting Career Pathways.
>
> Goal 2: Provide professional development opportunities for teachers, counselors and administrators.
>
> Goal 3: Develop marketing strategies to promote Career Pathways.
>
> Goal 4: Collect qualitative and quantitative data on academic and career success, retention rates, dropouts, graduation, transitions, and remediation for students involved in Career Pathways. (Career and Technical Education North Dakota, 2003, Tech Prep Statewide Goals and Objectives, 5)

The advisory boards and Tech Prep coordinators use federal funds to support their mission and goals. The numbers of students that are identified as Tech Prep completers are tracked on the LCAP data reports (Career and Technical Education North Dakota, 2003, Tech Prep Statewide Goals and Objectives, 7).

Summary

The development of educational reforms, programs, and initiatives of NCLB, CTE, Nontraditional Careers and Tech Prep in the United States has created a varied and rich

history of the effort to educate students. Each of these educational reforms and programs has affected on the enrollment of students in CTE programs over the past decades.

NCLB has had many supporters and dissenters since it was written in 2001. The effects of these criticisms have far reaching implications for secondary education and, in particular, elective CTE programs. At the center of the NCLB legislation are four key concepts: school accountability, more flexibility for states and school districts in the use of federal dollars, more choice for disadvantaged children, and teaching methods.

CTE programs have evolved over the years in response to the changing demands of America's work force. CTE programs provide real world connections for students with their future employment, a powerful motivational tool for students. CTE programs provide students an effective educational alternative for reinforcing reading, math, and science skills that are highly valued in state assessments (Daggett, October 2005). CTE leaders and teachers must review their course content and revise teaching content to compliment the academic focus on reading, math, and science as dictated by NCLB.

Nontraditional Career and Tech Prep are federal supported CTE initiatives designed to address specific issues found in high school CTE programs. The Nontraditional Career initiative seeks to provide students opportunities based on skill, interest and ability rather than gender. CTE program areas traditionally have been gender specific. The Nontraditional Career initiative is a conscientious and deliberate program effort that can affect student career choice with direct consequences for student enrollment in CTE programs. This initiative has provided opportunities for women to consider nontraditional careers that tend to be more lucrative.

Tech Prep was developed to make the transition from high schools to careers or postsecondary education as seamless as possible for CTE students. Tech Prep provides a program of studies for the student that allows them to choose a career path that best suits their skills, ability, interest, and temperament. Articulation and dual credit opportunities are designed to provide students a postsecondary advantage. These programs can serve as an incentive for students and parents because students can earn college status or credit while in high school. An articulated high school program can be viewed as validation of the courses content and rigor. Tech Prep is an effort to support the neglected majority of students whose future does not rely on a four-year college degree. Student enrollment in a CTE program can be influenced by a strong local Tech Prep initiative as parents and students see the value in making career choices while in high school. Each of these CTE educational reforms, programs and initiatives exerts influence on the enrollment of students in CTE programs.

Chapter III presents the methodology by which this study was conducted to determine if NCLB, Nontraditional Careers and Tech Prep educational initiatives have affected North Dakota CTE student enrollment. Chapter IV provides a statistical analysis on data gathered from state educational entities and data gathered from a CTE survey of North Dakota CTE LCAP administrators that focused on the effects of NCLB, Nontraditional Career and Tech Prep initiatives upon CTE programs. Chapter V provides summary, discussion, conclusions, recommendations, and conclusions based on the data results.

CHAPTER III

RESEARCH METHODS AND PROCEDURES

Purpose of the Study

The purpose of this study was to examine the effects of the NCLB legislation on the enrollment of elective secondary CTE programs in North Dakota public schools. Data were collected from two public educational institutions and through a researcher-designed survey. The survey was developed following University Institutional Review Board guidelines. The survey questions were developed based on a review of literature and the researcher's experience, reviewed by the researcher's faculty advisor and reviewed by the faculty advisory committee. The NDDPI provided data related to school district student enrollment and the CTE LCAP system provided data related to the CTE enrollment. CTE LCAP administrators in the state of North Dakota were surveyed to provide their perspective on the relationship between NCLB and their CTE programs. The quantitative data collected from the 1999-2000 school year to the 2004-2005 school year included the schools' secondary student enrollment, LCAP data, and surveys of the CTE LCAP administrators.

Research Questions

The following research questions were developed by the researcher and were used to guide this study.

1. Is there a difference in the percentage of students enrolled in CTE programs in North Dakota during the years of 2000 and 2005 following the passage of the NCLB Act?
2. Is there a difference in the percentage of students enrolled in CTE in each of the 16 individual program areas in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?
3. Is there a difference in the percentage of students enrolled in each of the CTE four categories (gender, race, special populations, and other classifications) in North Dakota during the years from 2000 to 2005 following the passage of the NCLB Act?
4. Is there a difference in the percentage of students enrolled in CTE Nontraditional Career classification in North Dakota during the years from 2000 to 2005 following the passage of the NCLB Act?
5. Is there a difference in the percentage of students enrolled in CTE Tech Prep classification in North Dakota during the years from 2000 to 2005 following the passage of the NCLB Act?
6. What has been the effect of NCLB on CTE programs as perceived by selected CTE LCAP administrators?
    a) Has the percentage of CTE programs changed due to the NCLB mandate?
    b) Has the percentage of CTE sections changed due to the NCLB mandate?

c) Has the percentage of students enrolled in CTE classes changed due to the NCLB mandate?

d) Has the percentage of CTE teachers changed due to the NCLB mandate?

e) Has the amount of funding for CTE programs changed due to the NCLB mandate?

f) Has the focus on NCLB affected CTE teacher staff development opportunities?

Sample

Data collected included enrollment numbers from the public school districts in North Dakota that maintain CTE programs. The data are part of the reporting system that local schools are required to provide to NDDPI in their annual reports to the state legislature. These data are generated by the local school district level and reported to the state on various electronic forms. The school enrollment numbers provide insight on the demographics of student enrollment trends. The enrollment trends of the number of students in the North Dakota public schools were targeted as the study range within the school years of 1999-2000 to 2004-2005.

The CTE LCAP data are gathered from local school districts on a yearly basis. The data set extends over six years of state LCAP data. The LCAP information includes many subgroups. The subgroups include 16 CTE program areas as well as demographics of gender, ethnicity, special populations, and other classifications.

The survey sample was 20 CTE LCAP administrators who are responsible to submit local LCAP data on a yearly basis. The administrators were chosen based on the 20

largest public school systems, which receive Carl Perkins funding. The surveys included demographic information and questions relating to CTE LCAP administrators' perceptions of the effects of the NCLB on their local programs. The local CTE LCAP administrator surveys provided local perspectives on CTE programs when considering the effects of NCLB, Tech Prep, and Nontraditional Careers initiatives on their schools' CTE enrollment. The surveys followed the prescribed professional formats, as outlined in the research guidelines, the Universities Instructional Research Institute (approved project number 200602-221).

The study draws from two major data sets of existing educational data. The first set is from NDDPI that maintains a web site that includes many types of public school data. One section of data are called the Statistical Summary and Directory Guide. NDDPI has posted this information for the 1999-2000 to 2004-2005 school years on their website. The data include many categories of information about each K-12 school in the state of North Dakota. The data set is the result of annual public school reports of the numbers of students enrolled in their school district. The two primary pieces of data in this study are the total public school student enrollment in grades 9 thorough 12 and the number of public school teachers. The data sets were gathered from the school years from 1999-2000 to 2004-2005. The data set is located in a section of Educational Reports. The report lists eight sections. They are Section A: General Information; Section B: Statistical Summary and Directory Guide; Section C: Public School District Listing; Section D: School Plant Listing; Section E: Alphabetical Listing of Administrative Staff; Section F: Educational Directory; Section G: Accreditation Status; and Section H; North Dakota School Service Association.

Section F: Educational Directory applies to this study. Each school district in North Dakota is listed with the school district name and student enrollment broken down by subgroups. The groups include kindergarten; grades 1 through 6, 7 and 8, and 9 through 12, and total district enrollment. Data include the number of students enrolled in each school district for grades 9 through 12, as well as the total number of students enrolled in the school district for that year. The NDDPI data set is available from their website. The information is considered a public record and is accessible to anyone.

The second data set is available from the SDCTE. The data are managed on a web server. Since 1998 the SDCTE has collected school district CTE data based on program areas and demographic criteria. The Carl Perkins Act of 1998 requires that each public school district that receives federal dollars though the Carl Perkins Act grant to submit these data. These data represent the number of students enrolled in the local CTE program.

The LCAP CTE website data have restricted access though user IDs and passwords issued to the local LCAP administrators by SDCTE. Information is retrievable either by school building or by district totals. Four reports are available at this site. The information is complied into are four Accountability Reports. The reports are Basic Enrollment, Summary, Nontraditional, and Follow-Up. All four reports are broken into four classifications of Gender, Race, Special Populations, and Other Classifications. 16 program areas are listed in the data set. The areas include Agricultural Education and Natural Resources; Architectural and Construction; Arts and Communication; Businesses and Administration; Education and Training; Finance; Governance and Public Administration; Health Sciences; Hospitality and Tourism; Human Services; Informational Technology; Law Enforcement and Public Safety; Manufacturing;

Marketing Education; Science Technology and Engineering, and Transportation Distribution. These program areas represent over 60 secondary course offerings. The data was acquired by requesting the information from the Assistant Director of SDCTE.

The LCAP data are managed under the same jurisdiction of the state's open records law as the NDDPI data. The concern noted by the assistant state director of CTE was that the Family Educational Rights and Privacy Act (FERPA) regulations were honored. These regulations provide protection of students and their family's data. In this study, a concern was that the small numbers of some ethnic groups in the database could potentially allow someone to identify an individual. The FERPA concern was resolved by grouping the relatively small numbers of Asian, American Indian or Alaska Native, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, and Unknown/Other into a single group identified as minorities.

Instrument/Survey Description/Design

The third data set of information was gathered through the survey of CTE LCAP administrators in the state of North Dakota. These data provide a local perspective by local school CTE experts. This group was surveyed for their assistance concerning NCLB, Tech Prep and Nontraditional Career initiatives. The researcher created a 14 question survey that was used to gather the data.

The survey questions were developed based on the review of literature and the researcher's experience, reviewed by the researcher's faculty advisor and reviewed by the faculty advisory committee. The survey was developed following University Institutional Review Board guidelines which assigned the study, project number 200602-221. In order to increase the validity of the survey, the survey questions were piloted, and reviewed by a

CTE director who provided feedback. With the CTE directors' input, the questions were revised.

The survey participants were informed of their rights in relationship to the survey by a cover letter that served as a consent form. The survey participants' responses were kept anonymous.

The CTE LCAP administrator survey results provided local insight on CTE programs. The surveys were mailed to 20 CTE LCAP administrators identified by the SDCTE as the 20 largest Carl Perkins grantee CTE programs in North Dakota. The surveys were mailed though the United States postal system with a cover letter, survey questionnaire, and self-addressed stamped return envelope. The survey questionnaires were sent on three different occasions. The first survey mailing was completed on March 3, 2006. The participants were given two weeks to respond. After waiting about a week past the deadline, a total of ten surveys were returned. On March 20, 2006, a second set of surveys was mailed to the same group of administrators with a note thanking those who had already submitted their surveys and asking those who had not returned his or her survey to do so. A two-week window of time was allowed which resulted in five more surveys being returned. The third contact with this group was through email sent on April 5, 2006. The email thanked the participants who had already responded and urged those who had not responded to do so. The same cover letter and survey questions were attached to the email. A two-week window of time was allowed for them to respond. Two more surveys were returned, raising the total to 17 out of 20 (85%).

The questionnaires were gathered and the data are summarized in an Excel spreadsheet. The data were transferred from the Excel format into Statistical Package for

the Social Sciences (SPSS) software and analyzed to determine any effects of NCLB on North Dakota CTE programs.

The 14 question survey instrument was used to gather local CTE LCAP Administrators' perspective based on the six research questions. The survey focused on the local demographics of each school district, the CTE LCAP administrators' opinion of NCLB, Tech Prep and Nontraditional Career initiatives, and their perceived effects on the local CTE programs.

Survey questions one through three were demographic questions designed to gather information from the CTE LCAP administrators concerning their school district and CTE program size. Questions four though seven were designed to gather demographic information about the changes that the administrators have experienced in their CTE departments ranging from 2001 to 2005. A three-point Lickert measuring scale was used to assess the participants' responses related to changes in their CTE programs. The three-point measuring scale choices were Increased, Stayed the Same, and Decreased.

Survey questions eight through 12 were written to gather data about the CTE LCAP administrators' perspective on the effects of NCLB on their program. The five-point Lickert measuring scale was used to assess participants' opinion on the effects that they have experienced. The five-point measuring scale choices were Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree. Question 13 asks about the effects of NCLB on subgroups within a department. The subgroup list included Gender, Race, Special Populations, Tech Prep, and Nontraditional Career. A three-point Lickert measuring scale was used to assess the participant's data related to changes in their CTE programs. The three point measuring scale choices were Increased, Stayed the Same, and Decreased.

Question 14 was an open-ended question written to gather feedback from the participants about their perspectives of changes to CTE programs.

Data Collection

The researcher data collected information fall school enrollment numbers, LCAP data, and survey responses of the CTE LCAP administrators. One data set was already available as part of the reporting process which each public school provides NDDPI. The school enrollment data provided a base line to measure the number of students and teachers in each school district. This measure determined demographic trends based on the number of students and teachers in North Dakota public high schools. The data generated a benchmark for the number of students available to enroll in CTE programs.

The CTE LCAP data were a part of the yearly reporting process reported to the SDCTE. The LCAP data are used to track any changes in student enrollment in the CTE programs. The SDCTE collects LCAP data each year as part of the Carl Perkins III accountability process. Every school district that offers CTE programs and receives Carl Perkins III grant money, submits LCAP data to the SDCTE (Quick, 2002). The CAR is written and submitted each year to the federal government as required by Carl Perkins III legislation (Wilson, 2002). The CAR reports are LCAP state CTE summaries. These informational summaries were reviewed spanning a seven-year period in order to measure the number of students and programs in the CTE departments, and provide insight into any changes to CTE enrollment trends.

The CTE LCAP administrators' survey had 14 questions designed to gather perception and data from local administrators: 17 administrators responded.

Data Analysis

The data gathered on the North Dakota CTE student enrollment included descriptive statistics. The data were analyzed using the services of the Bureau of Educational Services and Applied Research at the University of North Dakota, Grand Forks, North Dakota. Information was collected and the researcher determined appropriate statistical tests to be applied. The statistical software program SPSS was used to calculate the results from the data. Statistical correlations determined the counts and percentages information. The counts and percentages provide a method to compare and analyze trends. The data are displayed in tabular and narrative fashion in Chapter IV. The six research questions results are reported in frequencies and percentages through the SPSS software.

The survey data provided administrative perceptions on the efforts of the local CTE programs in addressing issues with the NCLB mandate. This third data set provided another level of data that contributes a holistic view of the NCLB legislation effects on North Dakota CTE programs.

Comparing the student enrollment data and the LCAP data gathered before and during the NCLB mandate provides a correlation of the effects on student enrollment by NCLB. The survey data results suggest how local school districts are reacting to the NCLB legislation.

Each program area (Informational Technology, Technology Education, Family and Consumer Sciences, etc) were analyzed to note trends. Another group of statistics analyzes the effects on gender, ethnic groups, special populations, and other classifications. The final report provides a statistical summary with correlations, comparisons of percentages,

and reporting of statistical significance of the findings of the student enrollment data, LCAP data, and surveys.

Summary

This study focused on the statistical analysis of student enrollment in public schools of North Dakota, LCAP enrollment, and CTE LCAP administrators' perceptions to determine if NCLB legislation has affected CTE programs. The major variables were the number of students enrolled in North Dakota Public Schools from 1999 to 2005 and the number of students enrolled in CTE programs over the same time period. Another set of variables include the number of teachers employed in North Dakota Public Schools from 1999 to 2005 and the number of teachers employed in CTE programs over the same time period. There were 16 program areas identified in the CTE department. The 16 program areas are categorized into three subcategories of gender, race, and special populations. There were two other categories under the heading of other classifications.

One of the other classifications is labeled Nontraditional Career Populations, which includes students enrolled in courses, which are considered gender imbalanced. The second classification was the Tech Prep program.

Chapter III provided a summary of the population for the study, its design, administration, data analysis outline, and the data collection process. Chapter IV presents the findings of this study in tabular and narrative form. Chapter V provides summary, discussion, conclusions and recommendations, based on the analysis of the data results.

CHAPTER IV

RESULTS

This study examined the effects of the NCLB legislation on the enrollment of elective secondary CTE programs in North Dakota public schools and used quantitative data to identify enrollment trends in CTE programs when considering statewide student enrollment, Tech Prep, and Nontraditional Career initiatives, and NCLB. CTE leaders must understand challenges that could affect their programs so they can review and revise their program areas in order to maintain enrollment and provide appropriate course offerings to North Dakota students.

Description of Sample

The enrollment trends of the number students in the North Dakota public schools targeted in the study ranged from the school years of 1999-2000 to 2004-2005. Data from the NDDPI provided the number of students enrolled in public schools in grades 9 through 12 during the six school years. NDDPI also provided data on the number public school teachers employed in teaching grades 9 through 12 during the same period of time.

The SDCTE CAR report is compiled, written and submitted each year to the federal government as part of the Carl Perkins Act III legislation. The CAR reports are summaries of LCAP data. These informational summaries were reviewed from the past six years to measure the number of students and programs in the CTE departments and provide insight into any changes in CTE enrollment trends. Unfortunately, the data from 1999-2000 school

year proved to be suspicious due to low values. This was the first year the SDCTE converted from a paper reporting system to a computer web-based system.

The LCAP information includes many CTE subgroups. Those subgroups include 16 program areas as well as demographics of gender, ethnicity, social economic status, and "other classifications." Each program area (Informational Technology, Architectural and Construction, Manufacturing, etc) were analyzed to note any trends as well. Another group of data sets from the CAR report relate to gender, ethnic groups, special population, and other classifications that were analyzed as to their effects of CTE enrollments.

The survey data provided data that accounts for effects of NCLB, Tech Prep, and Nontraditional Career initiatives on the local secondary school level of CTE enrollment. Another consideration includes any effect of NCLB on any particular program(s) of the 16 CTE program areas. The two federal CTE initiatives of Tech Prep and Nontraditional Careers were studied as to their influence on student enrollment in CTE as well.

Findings

The following research questions were developed and applied to the research process. North Dakota public schools have experienced a declining enrollment for a number of years. The number of public high school students has decreased from 36,563 students in 2000 to 33,311 students in 2005 according to the NDDPI. During the same time period the number of students enrolled in CTE programs in 2000 was 34,934 students which decreased to 33,768 students in 2005 according to LCAP reports. The overall trend in both student populations was decreasing but the number of CTE students is decreasing more slowly than the overall student population. Some of the tables in this chapter use percentages based on the number of CTE students' verses overall number of high school

students as a method to compare the two populations. The following narratives and tables relate the research questions to the gathered data sets.

Research Question One

Is there a difference in the percentage of students enrolled in CTE programs in North Dakota during the years of 2000 and 2005 following the passage of NCLB Act?

Table 1 illustrates the relationship between the percentages of students enrolled in CTE programs during the school years from 2001 to 2005 correlated with the total student enrollment in grades 9 through 12 in North Dakota public schools. The data show a trend of an increasing percentage of students enrolled in CTE programs as compared to the total percentage of students attending senior high school. The total increase over the five-year time span is 5.8%. The average increase percentage is 1.2 % per year with the largest increase occurring between the years of 2001 and 2002 of 3.2 %. There was a drop in CTE student enrollment verses total percentage of student enrollment from 2002 to 2003 of .75%. There was a steady increase of student enrollment in CTE programs during the 2003 to 2005 period. The three-year total increase was 15.7 % increase with a yearly

Table 1. Percentage of CTE Students Compared to Public School Students Enrolled in Grades 9 Through 12 From 2001 to 2005.

Academic Year	2001	2002	2003	2004	2005
Percent of CTE students					
101.37					1
98.72		1			
98.55				1	
97.97			1		
95.54	1				

average increase of 5.24%. As noted on the table there were more students enrolled in CTE programs than students attending high school (101.3%), due to students enrolling in more than one CTE class at the time.

Table 2 illustrates the relationship between the percentages of teachers employed in CTE programs as compared to teachers employed in North Dakota public schools in grades 9 through 12 during the school years from 2001 to 2005. The data show a trend of an increasing percentage of teachers employed in CTE programs as compared to the total number of teachers employed in senior high schools. The total increase over the five-year span is 2.8%. The average yearly percentage increase is .6 % per year with the largest increase occurring between the years of 2004 and 2005 of 2.7 %. There was a decrease in percentage of CTE teachers employed verses total teachers employed from 2003 to 2004 of -.4%. There was an increase of teachers employed in CTE programs during the 2004 to 2005 period of 2.8 %. In 2005 over 22.04% of the teachers employed in grades 9 through 12 were CTE teachers.

Table 2. Percentage of CTE Teachers Compared to Public School Teachers in Grades 9 Through 12 From 2001 to 2005.

Academic Year	2001	2002	2003	2004	2005
Percent of CTE teachers					
22.04					1
19.68			1		
19.68		1			
19.33				1	
19.22	1				

The considering the result of the two tables indicates an increase in both the percentage of CTE students and CTE teachers for the five-year period of time. The CTE student percentage dropped in 2003, which is the first year NCLB was being implemented.

Research Question Two

Is there a difference in the percentage of students enrolled in CTE each of the 16 individual program areas in North Dakota during the years 2000 and 2005 following the passage of the NCLB Act?

Table 3 provides information on which program areas increased or decreased by percentage of student enrollment during a five-year period. 12 program areas experienced growth that ranged from as minimal .01% to 3.61%. The smallest growth program area was Hospitality and Tourism, and the largest growth was by the Business and Administration Education over the time period. Two program areas that lost students included Architectural and Construction which lost .9%, and Education and Training that lost .25%.

The school year 2001-2002 proved to be the most common year for program area growth. Five CTE program areas experienced their largest growth in during the 2001-2002 school year. The five program areas were Agricultural and Natural Resources, Finance, Hospitality and Tourism, Human Services, and Science, Technology, Engineering, and Mathematics. The same year also saw the largest decreased enrollment for the two program areas. The decreasing program areas were Architectural and Construction and Education and Training. Three CTE program areas experienced the most growth in 2004-2005. The program areas were Business and Administration Education, Marketing Sales and Services and Transportation, Distribution, and Logistics.

Table 3. Percentage of Student Enrollment in 16 CTE Program Areas During the Five-year Period From 2001 to 2005.

Program Area Name	5 Year Overall % Increase	Year of largest Increase	5 Year Overall % Decrease	Year of Largest Decrease
Agricultural and Natural Resources	1.5%	2001-2002		2002-2003
Architectural and Construction		2001-2002	-.9%	2002-2003
Arts, Audio Video Technology and Communication	.6%	2003-2004		2002-2003
Business and Administration Education	3.61%	2004-2005		2003-2004
Education and Training		2001-2002	-.25%	2004-2005
Finance	.037%	2001-2002		2004-2005
Government and Public Administration	NA	NA	NA	NA
Health Sciences	.37%	2003-2004		2001-2002
Hospitality and Tourism	.01%	2001-2002		2002-2003
Human Services	1.79%	2001-2002		2002-2003
Informational Technology	.79%	2002-2003		2003-2004
Law, Public Safety and Security	NA	NA	NA	NA
Manufacturing	.09%	2003-2004		2001-2002
Marketing Sales and Services	.5%	2004-2005		2002-2003
Science, Technology, Engineering, and Mathematics	1.73%	2001-2002		
Transportation, Distribution, and Logistics	1.93%	2004-2005		

Research Question Three

Is there a difference in the percentage of students enrolled in each of the CTE four categories (gender, race, special populations, and other classifications) in North Dakota during the years of 2000 to 2005 following the passage of the NCLB Act?

Table 4 indicates an overall increase of female students enrolled in the CTE program area but with fluctuating changes throughout the five-year time span. The overall percentage increase during the five years was 7.15% with a yearly average increase of 1.43%. The largest yearly increase occurred from 2004 to 2005 with a 1.61% increase, and the largest decrease was between the 2002 and 2003 school year with a .56% decrease. Table 4 shows that in 2005, 42.35% of female students in grades 9 through 12 enrolled in some type of CTE course.

Table 4. Percentage of Female Students Enrolled in CTE Programs.

Academic Year	2001	2002	2003	2004	2005
Percent of Females					
42.35					1
41.66		1			
41.10			1		
40.74				1	
39.52	1				

Table 5 indicates an increase of male students enrolled in the CTE program area but with a single-year drop from 2002 to 2003 throughout the five-year time span. The overall percentage increase during the five years was 3.0% with an average yearly average increase of .60%. The largest yearly increase occurred from 2004 to 2005 with a 1.2% increase, and the largest decrease was between the 2002 and 2003 school year with a .27%

decrease. Table 5 shows that 59.02% of North Dakota public high school male students enrolled in a CTE class during the 2005 school year.

Table 5. Percentage of Male Students Enrolled in CTE Programs.

Academic Year	2001	2002	2003	2004	2005
Percent of Males					
59.02					1
57.82				1	
57.07		1			
56.87			1		
56.02	1				

Table 6 indicates an overall increase of minority students enrolled in CTE program areas but with a single year of decreased enrollment throughout the five-year time span. The overall percentage increase during the five years was 2.91% with a yearly average increase of .58%. The largest yearly increase occurred from 2001 to 2002 with a 1.16% increase, and the largest decrease was between the 2003 and 2004 school year with a .27% decrease. Table 6 shows that 10.14% of CTE students represent a minority population in 2005 and the percentage has increased since 2001.

Table 6. Percentage of Minority Students Enrolled in CTE Programs.

Academic Year	2001	2002	2003	2004	2005
Percent Minority					
10.14					1
09.33			1		
09.06				1	
08.39		1			
07.23	1				

Table 7 indicates an overall increase of white students enrolled in the CTE program area but with a single-year drop from 2002 to 2003 throughout the five-year time span. The overall percentage increase during the five years was 2.91% with a yearly average increase of .582%. The largest yearly increase occurred from 2001 to 2002 with a 2.01% increase, and the largest decrease was between the 2002 and 2003 school year with a 1.68% decrease. Table 7 shows that 91.23% students enrolled in CTE programs are white. Note that the total percentage of minority and white students exceeds 100%. This is due to students enrolling in more than one CTE class.

Table 7. Percentage of White Students Enrolled in CTE Programs.

Academic Year	2001	2002	2003	2004	2005
Percent White					
91.23					1
90.33		1			
89.50				1	
88.65			1		
88.32	1				

Table 8 indicates an overall increase of special populations students enrolled in the CTE program area but with a single-year drop from 2003 to 2004 throughout the five-year time span. The overall percentage increase during the five years was 8.44%, with a yearly average increase of 1.69%. The largest yearly increased occurred from 2002 to 2003 with a 2.69 % increase, and the largest decrease was between the 2003 and 2004 school year with a 1.51% decrease. Table 8 shows that 35.98% of CTE students are identified as special population in 2003 and dropped to 34.75% by 2005.

Table 8. Percentage of Special Populations Students Enrolled in CTE Programs.

Academic Year	2001	2002	2003	2004	2005
Percent Special Populations					
35.98			1		
34.75					1
34.47				1	
33.29		1			
26.31	1				

Research Question Four

Is there a difference in the percentage of students enrolled in CTE Nontraditional Career classification in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?

Table 9 indicates an overall increase of Nontraditional Career students enrolled in the CTE program area but with fluctuating changes throughout the five-year time span. The overall percentage increase during the five years was 1.43 % with a yearly average increase of .286%. The largest yearly increase occurred from 2002 to 2003 with a 1.26%

Table 9. Percentage of Nontraditional Career Students Enrolled in CTE Programs.

Academic Year	2001	2002	2003	2004	2005
Percent Nontraditional					
09.13					1
08.96			1		
08.90				1	
08.46	1				
07.70		1			

increase, and the largest decrease was between the 2001 and 2002 school year with a .76% decrease. Table 9 shows 9.13% of CTE students are considered nontraditional. The table also depicts an upward trend with increasing percentage of nontraditional career students enrolling in CTE programs.

Research Question Five

Is there a difference in the percentage of students enrolled in CTE Tech Prep classification in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?

Table 10 indicates an overall increase of Tech Prep students enrolled in the CTE program area but with fluctuating changes throughout the five-year time span. The overall percentage increase during the five years was 6.87% with a yearly average increase of 1.374%. The largest yearly increase occurred from 2002 to 2003 with a 3.26% increase and the largest decrease was between the 2001 and 2002 school year with a 1.03% decrease. This table indicates that the Tech Prep numbers have steadily grown over the past four years. Table 10 shows a general trend upward in the percentage of students identified as Tech Prep students. In 2005, 9.92% of the CTE students identified as Tech Prep students.

Table 10. Percentage of Tech Prep Students Enrolled in CTE Programs.

Academic Year	2001	2002	2003	2004	2005
Percent Tech Prep					
09.92					1
07.45				1	
04.19			1		
04.08	1				
03.05		1			

The researcher's survey was developed to gather data from local CTE LCAP administrators about the effects of NCLB on their programs. The data from the survey provide insight in answering the next research question.

Research Question Six

What has been the effect of NCLB on CTE programs as perceived by selected CTE LCAP administrators?

a. Has the percentage of CTE programs changed due to the NCLB mandate?

b. Has the percentage of CTE sections changed due to the NCLB mandate?

c. Has the percentage of students enrolled in CTE classes changed due to the NCLB mandate?

d. Has the percentage of CTE teachers changed due to the NCLB mandate?

e. Has the amount of funding for CTE programs changed due to the NCLB mandate?

f. Has the focus on NCLB affected CTE teacher staff development opportunities?

The survey was distributed to 20 public school personnel representing 20 of the largest enrollment of students of public schools that receive Carl Perkins III funding. Seventeen surveys were returned after three rounds of survey participant contacts. Survey questions one through three are demographic questions designed to gather information from the CTE LCAP administrators, their type of CTE program, and the size of their CTE program. The three questions are based on ranges of numbers that provided nominal data. The first survey question gathered data about the LCAP administrator's position. The following table summarizes their data.

As can be seen in Table 11, 11 (64.7%) of the survey participations classified themselves as CTE directors; 5 (29.4%) were superintendents, and 1 (5.9%) was a

principal. Ten (58.8%) of the survey participations classified their CTE programs as Comprehensive High Schools, which provide academic and CTE programming in one physical plant; six (35.3%) classified as CTE Area Centers and one (5.9%) as a Perkins CTE Consortium.

Table 11. CTE LCAP Administrators' Perception of Their Positions.

VI Position	Frequency	%
1 Superintendent	5	29.4
2 Principal	1	5.9
3 Director of Career & Technical Education	11	64.7

Both the Comprehensive High Schools and CTE Consortiums are very similar in school structure. The only difference is that the Carl Perkins' grant dollars for a Consortium Schools includes money to be spent within a group of smaller school districts that would not ordinarily qualify for Carl Perkins' grants due to their small size. Therefore, by combining the Comprehensive and Consortium schools, there is a 64.7% return rate for those schools. In these classes of schools students enroll in the academic and elective courses, with the CTE course provided in the same physical plant. The CTE teachers and administrators are on the same staff with the academic teachers and administration. This means that this group of professionals will be dealing with NCLB and CTE issues more closely.

The CTE Area Centers are separate educational entities that provide CTE programming for students from many different school districts. The Area Centers are govern by a separate school board and are often a separate physical plant for the

comprehensive school. This may led to a different perspective of the mandates of NCLB and its affects on CTE programs.

Table 12. CTE LCAP Administrators' Perception of CTE Programs Represented in the Survey.

Type of CTE Program	Frequency	%
1. CTE Consortium	1	5.9
2. CTE Area Center	6	35.3
3. Comprehensive High School	10	38.8

This question was asked in order to identify CTE department size. Using the 1999-2000 school year as a base line, one CTE department increased in size to move up a category from 1-99 to 100-299. During the 2000-2001 and 2001-2002 school years the CTE department size remained in their same category. In 2002-2003, one school CTE department decreased in size so they moved from the 300-599 category to the 100-299 category. School year 2003-2004 saw another school move from 300-599 category to the 100-299 column, and one school CTE reported that they increased from the 300-599 category to the 600+ category. In the last sample year, 2004-2005, another school moved from the 300-599 category to the 100-299 category. Overall, four schools reported a smaller percentage of students in the 2004-2005 school year in CTE programs than in 1999-2000. One school reported an increase of students in the same time period.

Survey questions four though seven were designed to gather data about changes that the CTE LCAP administrators have experienced in their CTE departments ranging from 2001 to 2005. A three-point Lickert measuring scale was used to assess the

administrator data related to changes in their CTE programs. The three-point measuring scale choices were Increased, Stayed the Same, and Decreased.

Table 13. CTE LCAP Administrators' Perception of Students Enrolled in CTE Departments.

	Less than 99		100 to 299		300 to 599		600 +	
	N	%	N	%	N	%	N	%
Number of students in your CTE department, 1999-2000	1	5.9	6	35.3	5	29.4	5	29.4
Number of students in your CTE department, 2000-2001			7	41.2	5	29.4	5	29.4
Number of students in your CTE department, 2001-2002			7	41.2	5	29.4	5	29.4
Number of students in your CTE department, 2002-2003			8	47.1	4	23.5	5	29.4
Number of students in your CTE department, 2003-2004			8	47.1	3	17.6	6	35.3
Number of students in your CTE department, 2004-2005			9	52.9	2	11.8	6	35.3

Table 14 indicates that the CTE administrators perceived the number of CTE programs increased over the five-year period of time. In the 2003-2004 school year, 23.5% of the schools experienced growth. Overall, there were 10 reports of CTE programs increasing. Only one program (5.9%) experienced a decrease in their program, which occurred in 2001-2002.

Table 15 indicates that the CTE administrators felt that the number of CTE program sections increased over the five-year period of time. In the 2003-2004 school year, 47.1% of the schools experienced growth. Overall, there were 18 reports of increasing numbers of

Table 14. CTE LCAP Administrators' Perception of Change to CTE Programs in the School District.

	Increased		Stayed the Same		Decreased	
	N	%	N	%	N	%
2001-2002	1	5.9	15	88.2	1	5.9
2002-2003	2	11.8	15	88.2		
2003-2004	4	23.5	13	76.5		
2004-2005	3	17.6	12	70.5		

Table 15. CTE LCAP Administrators' Perception of Change in the Number of CTE Sections in the School District.

	Increased		Stayed the Same		Decreased	
	N	%	N	%	N	%
2001-2002	3	17.6	14	82.4		
2002-2003	3	17.6	14	82.4		
2003-2004	8	47.1	7	41.2	2	11.8
2004-2005	4	23.4	9	52.9	4	23.5

CTE sections. Only four programs experienced a decrease in their program sections in 2004-2005 while four programs experienced an increase in their program sections. The largest decrease in sections occurred in the last two years of the data. The last two saw a doubling of the number of programs experiencing loss of sections.

Table 16. CTE LCAP Administrators' Perception of Change of CTE Instructors Employed in the School District.

	Increased		Stayed the Same		Decreased	
	N	%	N	%	N	%
2001-2002			16	94.1	1	5.9
2002-2003	1	5.9	16	94.1		
2003-2004	3	17.6	12	70.6	2	11.8
2004-2005	2	11.8	13	76.5	2	11.8

Table 16 indicates that the CTE administrators perceived the number of CTE instructors increased over the five-year period of time. Six administrators reported increased number of CTE instructors while five administrators reported decreased numbers. In the 2003-2004 school year, 17.6% of the schools experience growth. Only two programs experienced a decrease in their CTE teachers in 2004-2005, while two programs experienced an increase in their CTE teachers. The largest decrease in CTE teacher occurred in the last two years of the data.

Table 17 indicates that the CTE administrators perceived their CTE budgets have increased over the five-year period of time. A total of 30 instances of budget increases were reported by administrators while a total of nine instances of decreasing budgets were reported. In the 2003-2004 school year 56.3% of the schools experienced budget growth. Only 3 programs experienced a decrease in their CTE budget in both 2003-2004 and 2004-2005. The largest decrease in CTE budget occurred in the last two years of the data.

Table 17. CTE LCAP Administrators' Perception of CTE Programs Experiencing Changes in the Local CTE Budget.

	Increased		Stayed the Same		Decreased	
	N	%	N	%	N	%
2001-2002	6	37.5	9	56.3	1	6.3
2002-2003	7	43.8	7	48.8	2	12.5
2003-2004	9	56.3	4	25.0	3	18.8
2004-2005	8	50.0	5	31.3	3	18.8

Survey questions eight through twelve were written to gather data about CTE LCAP administrator's perspective on the effects on NCLB on their program. The five-point Lickert measuring scale was used to assess the participants' opinion on the effects that they had experienced. The five-point measuring scale choices were Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree.

Table18. CTE LCAP Administrators' Perception of the School Districts Devoting More Staff, Time, or Money to the NCLB Mandate at the Expense of CTE Programs.

	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%	N	%
2001-2002			1	5.9	3	17.6	9	52.9	4	23.5
2002-2003	1	5.9	1	5.9	2	11.8	9	52.9	4	23.5
2003-2004	2	11.8	2	11.8			10	58.8	3	17.6
2004-2005	3	17.6	1	5.9			10	58.8	3	17.6

Eleven administrators' responses were either strongly agreed or agreed that their school district devoted more staff, time, or district money to the NCLB mandates at the

expense of CTE programs. Seventy-six percent of the administrators perceived that NCLB has not affected CTE staffing, time or money; 52 administrators responded with either Strongly Disagree or Disagree that their school district is using more resources for NCLB mandates at the expense of CTE programs over the four years of data. The number of administrators strongly disagreeing was increasing over the last three years.

Table 19. CTE LCAP Administrators' Perception of CTE Student Enrollment Changes Due to NCLB.

	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%	N	%
2001-2002					2	11.8	13	76.5	2	11.8
2002-2003			2	11.8			14	82.4	1	5.9
2003-2004	2	11.8	1	5.9			13	76.5	1	5.9
2004-2005	1	5.9	3	17.6	1	5.9	10	58.8	2	11.8

Nine administrators responding either strongly agreed or agreed that their CTE student enrollments were affected by the NCLB mandates; 56 administrators' responded either Strongly Disagree or Disagree their CTE student enrollment was affected by the NCLB mandates; 76% of the administrators perceived that NCLB has not affected CTE student enrollment. The number of administrators strongly disagreeing or disagreeing increased over the last three years.

Two administrators responded either Strongly Agree or Agree that their CTE student enrollment was affected by the Tech Prep initiative; 52 administrator responses either Strongly Disagree or Disagree their CTE student enrollment was affected by the

Tech Prep initiative. The administrator's responses ranged from 70.5 % to 82.3% in reporting that they do not think Tech Prep affects CTE enrollment. This table also has the highest percentage of undecided responses.

Table 20. CTE LCAP Administrators' Perception of the Tech Prep Initiative Effects on CTE Enrollment.

	Strongly Agree N %	Agree N %	Undecided N %	Disagree N %	Strongly Disagree N %
2001-2002			5 24.9	9 52.9	3 17.6
2002-2003		1 5.9	3 17.6	9 52.9	4 23.5
2003-2004			3 17.6	9 52.9	5 29.4
2004-2005		1 5.9	3 17.65	8 47.1	5 29.4

Table 21. CTE LCAP Administrators' Perception of the Nontraditional Career Initiative Effects on CTE Enrollment.

	Strongly Agree N %	Agree N %	Undecided N %	Disagree N %	Strongly Disagree N %
2001-2002		4 23.5	8 47.1	4 23.5	1 5.9
2002-2003	1 5.9	3 17.6	8 47.1	4 23.5	1 5.9
2003-2004		8 47.1	4 23.5	4 23.5	1 5.9
2004-2005	2 11.8	6 35.3	4 23.5	4 23.5	1 5.9

Twenty-four administrators' responding either strongly agreed or agreed that their CTE student enrollment was affected by the Nontraditional career initiative. Twenty administrators responding either strongly disagree or disagree their CTE student

enrollment was affected Nontraditional career initiative. Table 21 had the most even distribution of responses of any the tables. This table also has the highest percentage of undecided responses.

Table 22. CTE LCAP Administrators' Perception of CTE Program Changes Due to NCLB.

	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%	N	%
2001-2002			1	5.9	8	47.1	7	41.2	1	5.9
2002-2003			4	23.5	6	35.3	7	41.2		
2003-2004	1	5.9	8	47.1	3	17.6	9	52.9		
2004-2005	3	17.6	7	41.2	2	11.8	5	29.4		

Twenty-four administrators' responding either strongly agreed or agreed their CTE programs have been affected by NCLB mandates; 29 administrator responses either strongly disagreed or disagreed that their CTE programs have been affected by NCLB mandates. During the last two years of data, the administrators perceived that NCLB is affecting change in their CTE programs. The percentage of administrators agreeing that NCLB was affecting changes increased from 5.9% in 2001-2002 to 58.8% in 2004-2005.

Survey question 13 was designed to ask CTE administrators about the effects of NCLB on subgroups within their department. The subgroup list included Gender, Race, Special Populations, Tech Prep, and Nontraditional Career. A three-point Lickert measuring scale will be used to assess the participant's data related to changes in their CTE programs. The three-point measuring scale choices were Increased, Stayed the Same, and Decreased.

Table 23. CTE LCAP Administrators' Perception of Students Enrolled in CTE Programs, Representing Different Subgroups.

	Increased		Remained the Same		Decreased	
	N	%	N	%	N	%
Changes to the number of Students in subgroup: gender	5	29.4	12	70.6		
Changes to the number of Students in subgroup: race	3	17.6	14	82.4		
Changes to the number of Students in subgroup: special populations	4	23.5	13	76.5		
Changes to the number of Students in subgroup: tech prep			16	94.1	1	5.9
Changes to the number of Students in subgroup: Nontraditional	8	47.1	9	52.9		

Five (29.4%) of the CTE LCAP administrators noted an increase in their CTE departments' gender balance; three (17.6%) of the LCAP administrators noted an increase of minority students in their programs; four (23.5%) of the LCAP administrators noted an increase in CTE departments' special education students; one (5.9%) of the LCAP administrators noted a decrease in the number of Tech Prep students; eight (47.1%) of the LCAP administrators noted an increase in Nontraditional Careers in their CTE programs.

Survey question 14 was an open-ended question written to gather feedback from the participants about their overall perspectives of changes to CTE programs since the passage of NCLB. Sixteen of the seventeen (94%) the CTE LCAP administrators answered the open-ended question.

There were two main themes that most administrators mentioned. One theme was the increase of high school academic graduation requirements, mentioned by four of the CTE LCAP administrators. These graduation increases were due to NCLB increased assessment requirements. This means that students may have fewer options in their class schedules to enroll in CTE courses.

Additionally, five CTE LCAP administrators mentioned student recruitment. This second theme noted that the local CTE programs efforts to increase CTE class enrollment through public relations endeavors. The public relation effort is focused on parents and students too raise their awareness level to the benefits of enrolling in CTE courses.

Career and Technical Education Survey
LCAP Administrators' Responses

Question 14: What do you believe has had the greatest impact on your CTE program since 2001?

NCLB hasn't had a significant impact, but the Tech Prep initiative has basically eliminated our programs as instructors are not available.

Our own awareness campaign and materials sent directly to parents.

Declining enrollment.

Moving U.S. History from the 9th grade to the 11th grade. The three year transition opened up more ½ credit electives at the ninth grade and limited those at the 11th grade. Ninth and tenth graders have to take at least 6 solid hours of courses. Eleventh and twelfth only need to take 5 solids.

The change in philosophy / approach in the Tech Ed area. To date we have not experienced a reduction in enrollment but we haven't made the sweeping change. The next two years will be critical for us.

On the table right now are discussions about the possibility of using CTE courses to fulfill grad. Requirements for example, there is some acceptance of using a BE course, "Managing Your Money", substitute for economics. CTE is excited about this possibility; such moves would, I believe, increase our enrollment.

Career counseling program.

Increasing pressure on graduation requirement.

Increasing and more emphasis in some schools to increase test scores i.e. more math, science, and language arts classes

Increase in the # of dual credit & ITV offerings have affected numbers in CTE—more electives, especially for student in smaller districts, to choose from standards have improved programs & accountability for what is taught.

An increase in Math required at HS added 1 credit to grad will impact 2006-07
Note made by question 7 Salary increase, oper. – same, decrease in overall budget

We conducted an "All Out" awareness campaign on the benefits and value of CTE. NCLB is putting pressure on schools to increase core subject area offerings. CTE will soon Be Left Behind.

Note Questions 8, 9, 10--??? The Likert scale is mismatched.

Increased student interest in career track program.

Tech Prep working harder to create opportunities for courses in CTE @ WHS

We have required our students to take 3 math classes to graduate, have a remedial math and English class that lower achieving students are required to take and require students to graduate with one Technology credit. These increased graduation requirements have lessened the number of electives that students can take. This had had a negative impact on enrollment in CTE classes.

Recruiting Students – Open house at CTE complex, CTE fair at the high school – for exposure of various programs offered.

Turn over in teachers / instructor positions and director position. Instructors have now been in place for 3 yrs and program #'s are increasing.

Summary

Chapter IV presented the findings and provided an analysis of the data of the six research questions and as well as the survey questions. Chapter V provides a summary, discussion, limitations, conclusions and recommendations of the research study.

CHAPTER V

SUMMARY, DISCUSSION, LIMITATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Chapter V provides a summary of the study along with a discussion of the study's findings. Chapter V also includes conclusions and recommendations for future study on the effects of NCLB legislation on enrollment of students in CTE programs in North Dakota.

Summary

The purpose of this study was to examine the effects of the NCLB legislation on the enrollment of elective secondary CTE programs in North Dakota public schools. There is a growing body of evidence that NCLB is affecting school districts and the curricular programs they provide. NCLB is a landmark school reform and as a result is a contributing factor in many educational modifications. This reform has had the greatest influence on secondary education because of two factors. One factor is the federal governments increased role in the operating parameters of local schools districts. A second factor is the increased focus on assessment of students and extensive sanctions against schools that do not perform well in test scores. The legislation has rigorous expectations of school progress with a very optimistic time line. The ultimate consequence of NCLB legislation is that school districts must make difficult choices.

There is substantial pressure on school systems to improve student test scores. The focus of the test scores is on core academic areas. Therefore, math, science, English, and social studies have become the focus for staff development, increasing graduation

requirements, text book adoption, scheduling classes, and providing remedial course work for students. School administrators feel they must concentrate limited school resources in those core subjects. All of these changes affect elective course selection for students.

The results of this study indicate there has been little effect on CTE program enrollment at this time due to NCLB. Part of the reason for this is the short amount of time the NCLB legislation has been in effect. As time goes on the impact may become more pronounced.

Three data sets were analyzed to provide information about student enrollment trends in North Dakota. The first data set from was from the NDDPI. The data included the number of public school teachers and students enrolled in public schools in grades 9 through 12 from 2000 to 2005. The second data set was from the SDCTE. This data represented the number of CTE teachers and students enrolled in the years from 2000 to 2005. These two sets of data were compared to rule out the effects of declining student enrollment in the state of North Dakota.

The third data set was the CAR complied by the SDCTE. The information reviewed for this project ranged from the years 2000 to 2005. This data are gathered yearly and provides data based on gender, race, special populations, and other classification in 16 subject areas. The results provided insight on the enrollment trends within CTE programs. Two federal CTE initiatives are grouped together within the special classifications that are tracked in the LCAP data. One of the initiatives is Tech Prep. The Tech Prep program was designed to make the transition from high school CTE programs to careers seamless for students. The Tech Prep program affects students as they choose high school courses within their careers clusters. The second initiative, called Nontraditional Careers, is a

program that encourages students to consider occupations that are gender imbalanced. The Nontraditional Career program affects the types of students that enroll in traditional gender dominated CTE programs. This project found evidence that both of these programs have a positive effect on the student enrollment in CTE programs.

The fourth data set gathered through the use of a survey of local Carl Perkins CTE LCAP administrators provided a local perspective of the effects of NCLB on CTE programs. Seventeen of 20 surveyed local Carl Perkins administrators responded to the survey. The administrators' data indicates that CTE enrollment has not been effected by NCLB but recent trends suggest that NCLB mandates will become more of a factor in CTE programs. The six research questions were analyzed using SPSS. Frequencies and percentages provided information to help analyze the data

Discussion

The majority of survey participants classified themselves as CTE directors. The high return rate of the surveys by CTE directors provides a positive influence on the accuracy of the information of the effects of NCLB and the enrollment in CTE programs. CTE directors have a vested interest in the school districts' CTE programs because a greater share of their job responsibility is tied directly to the CTE program. The directors have the time and responsibility to focus on CTE issues. The superintendents and principals have more diverse job responsibilities and devote less time to dealing with issues related to CTE programs.

The following research questions were developed by the researcher and used to guide this study.

Research Question One

Is there a difference in the percentage of students enrolled in CTE programs in North Dakota during the years of 2000 and 2005 following the passage of the NCLB Act?

The data from Chapter IV provide strong evidence that the number of students enrolled in CTE programs has not been affected by the passage of NCLB. One issue is that the numbers of students attending North Dakota public high schools are decreasing. The number of students enrolled in CTE course are also decreasing but at a slower rate. The result of this phenomenon is that the percentages of students enrolled in CTE programs have increased during the period of time of this study. Students may enroll in more than one CTE course during the school year we have the number of students taking CTE courses can exceed 100%.

The number of CTE teachers was compared to the total number of public school teachers. Here again there was a single-year dip in percentages but over the five-year period the percentage of CTE teachers increased. The increases would suggest that the CTE programs are growing in relation to the number of high school teachers. Once again, the number of CTE teachers is decreasing at a slower rate that the high school teacher group. One CTE LCAP administrator did mention that finding and hiring CTE teachers has become more difficult so some programs are not offered due to the lack of CTE staff.

The CTE LCAP administrators' responses provided more evidence of CTE program growth or slower decline. The administrators reported an increase in the number of their programs. Over the four-year period of time from 2002 to 2005, the clear majority of the administrators reported an increased number of CTE programs were noted. This would to the conclusion that is the numbers of programs are increasing than the CTE

department is providing more opportunities for students. There are a clear majority of the administrators reporting an increase in the number CTE sections. More sections of CTE courses would suggest more students and more programming is available for students. One important note is the decreasing number of CTE sections that occurred in 2004 and 2005, the last two years of data collected.

Chapter IV provides data relating to CTE budgets. The CTE LCAP administrators provided evidence of an increasing financial commitment to CTE programs. The majority of the administrators listed increases to CTE budgets. The deductive reasoning is that more students translate to more money committed to CTE budgets. Once again, the number of decreasing budgets was increasing at the end of the data reporting period. There seems to be little effect of NCLB on student enrollment in CTE classes at this time.

The data from Chapter IV provided a summary of administrators' perspectives concerning the effects on CTE programs by NCLB. A clear majority of the administrators reported that they perceived NCLB has not effected CTE enrollment during the schools years studied in this project. One issue to note includes the number of administrators reporting an effect of NCLB was increasing in the last two years of the reporting period.

Research Question Two

Is there a difference in the percentage of students enrolled in CTE each of the 16 individual program areas in North Dakota during the years 2000 through 2005 following the passage of the NCLB Act?

Two of the 16 program areas are not offered at the secondary level in North Dakota. The result is that there were 14 program areas to review for this study. Only two program areas recorded minimal student loss. The small student enrollment losses and could be a

result of minor changes in student choice or even the lack of CTE teacher availably. This could also indicate that these two program areas are losing students to other program areas, other school programs, or as a result of NCLB.

Twelve program areas experienced increased student percentages. This is significant because it this is taking place during a time of declining student enrollment. The increase in seems to be slowing because seven program areas saw their largest growth in 2001-2002 while only three programs saw their largest growth in 2004-2005. This trend seems to indicate that program growth maybe slowing down.

Research Question Three

Is there a difference in the percentage of students enrolled in each of the CTE four categories (gender, race, special populations, and other classifications) in North Dakota during the years of 2000 to 2005 following the passage of the NCLB Act?

Data gathered from CTE LCAP administrator surveys illustrate that the female student percentage in CTE programs increased over the five-year time period. This is an overall increase of nearly 3%, a significant amount of change. The majority of administrator surveys note an increase in the number of students enrolling in Nontraditional Careers courses. About a third of the administrators noticed an increase in gender balance in their CTE programs. Almost 50% of the administrators noticed an increase student enrollment due to Nontraditional Career activities. This data shows increases of student enrollment in Nontraditional Career CTE programs. This means that public schools' CTE programs are growing in student enrollment despite NCLB mandates.

Data in Chapter IV identifies the male student percentage in CTE programs rose over the five-year time period. This equates to an overall increase of 3.00% that is a significant amount of change over the five years of the study.

Minority student CTE enrollment data reported an increase in the percentage of the students enrolling in CTE programs based on the LCAP data. The CTE LCAP administrators reported an increase in the minority population enrolling in their CTE programs too.

The percentage of white students enrolling in CTE programs increased as well. The total increase was about 3% which is a significant increase. Special population enrollment as reported by the LCAP data reports almost 10% increase. The trend was noted about 25% of the CTE LCAP administrators as well.

The last category is labeled "Other Classifications" which includes two Carl Perkins funded initiatives. The Nontraditional Career student percentage grew almost 2%. Another category of other classification is Tech Prep. Data from the LCAP reports show Tech Prep increasing almost 7%. The overall trend is that NCLB has not affected these programs because they all show student growth.

Research Question Four

Is there a difference in the percentage of students enrolled in CTE Nontraditional Career classification in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?

Data from the LCAP reports indicates that the Nontraditional Career student percentage grew over the five-year period of time. This growth was noted by almost 50% of the CTE LCAP administrators as well. This would indicate that the program is

experiencing some success. This maybe a factor with the increase in CTE students' enrollment as females are looking to expand their career opportunities by taking courses which they would have avoided in the past.

This federal program has caused a 1.4% increase in the number of nontraditional students enrolling in CTE programs. This is significant, given the fact that the overall decrease of students enrolled in North Dakota secondary schools decrease over the same period of time. This program appears to have an effect on the enrollment of students in CTE programs that has lessened the effect of NCLB effect on student enrollment if CTE.

Research Question Five

Is there a difference in the percentage of students enrolled in CTE Tech Prep classification in North Dakota during the years 2000 to 2005 following the passage of the NCLB Act?

The LCAP data that identifies an almost 7% increase of students enrolling in Tech Prep. This increase creates an interesting conflict. The CTE LCAP administrators surveyed noted that the enrollment had either remained the same or actually decreased almost 6%.

This conflict is an example were the SDCTE LCAP counting of Tech Prep students is based on course titles that students enroll in and are automatically tallied in the state reporting system. The CTE LCAP administrators may lack understanding and knowledge of Tech Prep definitions, and may not recognize the difference between a Tech Prep course and a non-Tech Prep course.

Almost a 7% increase of students enrolled in Tech Prep classes is significant for two reasons. The number of students in secondary school has dropped during the same time period. Secondly, any increase is important but a 7% is noteworthy. These statistics

suggest that the Tech Prep initiative is successful and the program is part of the reason NCLB effects on CTE student enrollment have been minimal.

Research Question Six

What has been the effect of NCLB on CTE programs as perceived by selected CTE LCAP administrators?

a. Has the percentage of CTE programs changed due to the NCLB mandate?

A clear majority of the CTE LCAP administrators reported an increase of CTE programs over the four years of the data collection. This clearly indicates that CTE programs are growing despite NCLB mandates.

b. Has the percentage of CTE sections changed due to the NCLB mandate?

A majority of CTE LCAP administrators reported an increase in the number of CTE programs over the four years of the data collection. This indicates that CTE programs are growing despite NCLB mandates. There is indication of recent changes occurring. The number of decreasing sections occurred in the last two years of data. The number of administrators reporting decreasing number of CTE sections increased from two to four. This could be the beginning of a trend of less CTE sections being offered in the future.

c. Has the percentage of students enrolled in CTE classes changed due to the NCLB mandate?

Study data illustrates the relationship between the percentages of students enrolled in CTE programs during the school years from 2001 to 2005, correlated with the total student enrollment in grades 9 through 12 in North Dakota public schools. The data results appear as a trend of an increasing percentage of students enrolled in CTE programs as compared to the total percentage of students attending senior high school. There was a

steady increase of student enrollment in CTE programs during the 2003 to 2005 period. The three-year total increase was nearly 16%. As noted there were more students enrolled in CTE programs than students attending high school (101.3%); this is due to students enrolling in more than one CTE class at a time. This suggests that CTE student enrollment is growing when compared to the total number of students enrolled in grades 9 through 12, two reasons why CTE programs are holding students enrollment as compared to overall school enrollment or an indication that they are not losing students as quickly as the general student population.

Data from the LCAP administrators' perspective on student enrollment being affected by NCLB is important to analyze. The clear majority of the CTE LCAP administrators' responses perceived that NCLB has not affected CTE student enrollment. The number of administrators perceiving an effect of NCLB on CTE student enrollment over the last three years is increasing. This is a trend that supports the concept that NCLB is starting to impact CTE programs.

d. Has the percentage of CTE teachers changed due to the NCLB mandate?

Data illustrates the relationship between the percentages of teachers employed in CTE programs as compared to teachers employed in North Dakota public schools grades 9 through 12 during the school years from 2001 to 2005. The data shows a trend of an increasing percentage of teachers employed in CTE programs as compared to the total number of teachers employed in senior high schools. The total increase over the five-year span is nearly 3%. This is a significant increase when one considers that the number of teachers employed in North Dakota secondary public schools decreased from 2,232 to 2,169. There are three possible explanations for this trend. One is that the declining student

enrollment has not affected CTE programs as much as general education programs. The second explanation is that CTE programs have promoted their programs through initiatives to attract more students. A third explanation may be that the declining student population is affecting the number of elementary teachers more at this time. The declining student population is first felt in the lower grade levels as the birth rate declines and fewer couples of childbearing age reside in North Dakota.

Data indicates that CTE LCAP administrators perceive the number of CTE instructors to have increased a little over the five-year period of time. Only two programs experienced a decrease in their CTE teachers in 2004-2005 while two programs experienced an increase in their CTE teaching staff. The largest decrease in CTE teachers occurred in the last two years of the data which may be part of a trend that could be attributed to the effects of NCLB.

e. Has the amount of funding for CTE programs changed due to the NCLB mandate?

Data indicates that CTE administrators' perceive their CTE budgets have increased over the five-year period of time. A clear majority of the CTE LCAP administrators' noted an increased CTE budget. The largest decrease in CTE budget occurred in the last two years of the data collection period which could indicate a trend that NCLB can be affecting CTE programs. One administrator noted that overall teachers' salaries increased so the CTE programs would increase automatically due the CTE teacher salary increases. The question should have been more specific in asking about the operating budget of CTE programs.

f. Has the focus on NCLB affected CTE teacher staff development opportunities?

A clear majority of CTE LCAP administrators responding agreed that their school district were not using more school district resources to address NCLB mandates at the expense of CTE programs. The number of administrators perceiving NCLB was impacting school district resources was increased over the last three years of data collecting.

Limitations

The number of CTE LCAP administrators should have included a larger sample size. Limiting the survey to 20 administrators, although they represent the majority of students enrolled in CTE programs, they did not represent many of the smaller CTE programs. The smaller CTE programs may be more quickly affected by NCLB mandates because of their limited resources.

One survey question was confusing to the participants. Survey question number seven that asked about their CTE budget was considered too broad. The question should have focused on an operating budget that did not include staffing costs. Budgets usually rise due to salary increases. In this instance the use of descriptors such as increasing vs. decreasing is vague. Specific numeric data would have led to a more precise statistical analysis.

Timing of the survey in the fall of the school year would have been more helpful for the CTE LCAP administrators. The LCAP report is due to the SDCTE office in November. Sending out the survey near that time frame would make the data gathering for the administrators easier as the process and information was fresh in their minds.

The timing of this study became an issue. Change in public education happens slowly. According to educational experts systemic change in public schools can take anywhere from four to seven years to take effect. Although NCLB legislation was passed

in January of 2002, the effects of the program have not matured. Therefore if this study were to be researched in two to three more years the effects of NCLB on CTE programs maybe more fully developed.

Conclusions

CTE programs have evolved over the years in response to changing demands of America's workforce and related occupations. NCLB focuses on accountability, quality of teachers, teaching techniques that work, and opportunities for all students. CTE programs have used realistic learning as a foundation that already addresses NCLB mandates. One of the challenges of CTE teachers, administrators, and leaders is to promote their programs and constantly remain current and evolving to meet the needs of society.

One method for CTE programs to address those issues is the SDCTE standards effort. Over the past three years the SDCTE of North Dakota has been revising and creating CTE program standards. These standards include curriculum cross walks (matching CTE standards with academic core standards) with math, science, and English standards. This method addresses issues raised by NCLB. The real challenge will be to implement the standards across the state in a systematic and deliberate manner so that all CTE students will benefit from quality CTE programs. In order to address the issues raised by NCLB; CTE programs must prove their worth. They can prove to the educational community that CTE programs can support NCLB requirements through their ability to help students pass core area assessments through CTE programs that are rigorous and appropriate.

The future of the North Dakota CTE programs is bright provided CTE programs, teachers and administrators understand that the NCLB legislation is not going away. The historical perspective of federal intervention in education proves that each reauthorization

of the ESEA has affected schools. Since President Johnson's "War on Poverty" the federal government has continued to increase the number of programs and funding for education, which includes increased in regulations.

CTE leaders must review the current expectations in today's educational environment and revise their programs to adjust to the new mandates of accountability, improved assessment scores, reading, and math scores. CTE courses and programs must prove they teach students the knowledge and skills they need to be successful. This will happen only when CTE program teachers revise their course curriculum and develop course content based on relevant materials and held to rigorous standards.

The SDCTE of North Dakota is on an appropriate course. The initiatives of Tech Prep and Nontraditional Careers are important pieces of the CTE educational puzzle. These initiatives have proven to affect enrollment in CTE programs. Another current initiative is the development of statewide CTE course standards. These are being written for each program area. These standards are cross walked with math and science standards. This cross walk is a comparison of the CTE standards aligned with math and English standards. Each program area is reviewing its course content and making adjustments to align with national standards. Once this process is complete, the next challenge is to convince CTE teachers to change their courses to meet the standards.

Local CTE programs have developed initiatives on their own to help with CTE class enrollment. The CTE LCAP administrators' surveys mention holding open houses, printing flyers, and creating public relations campaigns to encourage students and parents to consider CTE courses.

This study found the effects of NCLB on CTE enrollment to be minor at this time, but the situation will change in the future. There are indications that trends are developing, caused by NCLB mandates that will affect CTE programs enrollment in the future. CTE programs must continue to increase their emphasis on career relevance and academic rigor and prove to their academic counterparts that CTE programs are an important and integral part of the educational experience for all students. Daggett, October (2005, p4) summaries it so well "*No Child Left Behind* is an opportunity that must be seized to ensure not just CTE's full participation in the broader education process, but also CTE's continued acceptance, credibility and success".

Recommendations for Future Study

One recommendation would be to complete a similar study three to five years from now. Educational change experts note that it takes from three to seven years to effect meaningful change in education. The extra time would allow NCLB to develop and mature or be replaced by another federal initiative. During this time frame school systems would have evolved processes, budgets, and programs to address NCLB mandates and the full effects on CTE programs would be measurable.

A second recommendation would be to include more CTE LCAP administrators in the survey. Including additional input from smaller school systems in the survey would have provided a more accurate picture of the state of CTE programs. Smaller school districts feel the effects of changes more quickly by virtue of their size and quantity of resources.

A third recommendation would be to restructure the survey questions to collect more precise data from CTE LCAP administrators about budget changes, students enrolled

in each of the program areas, number of CTE staff, and number of CTE sections. Collecting actual numbers of data would provide more information that is precise. The improved information would allow enhanced statistical analyses to be completed. This would be very important when researching for trends on the effects of NCLB.

A fourth recommendation would to include data about the availability of CTE teachers. The research focused on CTE programs, Tech Prep, and Nontraditional Career initiatives. There are many other influences that affect student and parent decisions on course choice. One factor would be the lack of CTE teachers. Some CTE programs are closed due to the inability of school districts to find certified staff.

A fifth recommendation would be to survey other public school administrators about their perceptions of NCLB and CTE programs. This would provide some interesting data. School district superintendents and principals make very important decisions that affect staffing, budgets, and the number of sections to offer. Their perspective on NCLB and CTE programs would be very important.

Recommendations for Educators

The SDCTE leadership can work with public officials in the governor's office and state legislators to provide support for CTE programs. Funding is critical in order to purchase up-to-date equipment and teaching materials, and to provide adequate resources so CTE teachers can do their job. At the state level CTE leaders must continue to provide CTE teachers with quality and appropriate staff development which is critical in updating teacher skills and knowledge. Local and state CTE public relations are important. Everyone in the CTE field needs to support and promote their programs. They need to

identify, recruit, and train new CTE teachers so the programs can continue to grow and evolve.

CTE teachers, administrators and leaders must become proactive in educational related issues. They need to assume leadership roles at both the state and local levels. CTE teachers already have a powerful tool through their local advisory committees. These committees and their members can influence local decisions about CTE programs. CTE teachers must seek opportunities to serve on local school district committees and champion their cause.

APPENDICES

Appendix A
Consent Form

March 3, 2006
LCAP Administrator

You are invited to participate in a dissertation study being completed by Jerome Gunderson, candidate for a Ph.D., at the University of North Dakota, under the supervision of his advisor, Dr. Sherry Houdek of the University of North Dakota Educational Leadership Department. The purpose of this study is to examine the effects of the NCLB legislation on the elective secondary Career and Technical Education (CTE) programs in North Dakota public schools. In 2001, the federal government passed the No Child Left Behind Act (NCLB) which has caused much discussion and forced changes to many K-12 programs (Phelps, 2003). The legislation was written to address issues in the core academic educational programs such as math, English, science and social studies. CTE programs were not included in the NCLB legislation but due to its relationship in public schools, the programs have been impacted. Your input is important in developing an accurate understanding of the effects of NCLB on local North Dakota CTE programs.

Participation is voluntary. If you choose to participate, there is no compensation and your risks are negligible; however, you will be contributing to the knowledge and understanding of the effects of NCLB on CTE programs in North Dakota.

Any information from this study will remain confidential. All data and consent forms will be kept in separate locked cabinets for a minimum of three years after the completion of this study. Only the researcher, the adviser and people who audit UND IRB procedures will have access to the data. After three years, the data will be shredded. If you do not have access to this data, please give this survey to the appropriate person who can complete the survey.

If you have questions about the research, you may call Jerome Gunderson at 701-792-4042, or Dr. Sherry Houdek at 701-777-2394. If you have any other questions or concerns, please call the UND Research Development and Compliance office at 777-4279, which has approved this study # 200602-221.

The survey should take less than 10 minutes to complete. Please complete the survey and return it in the addressed, postage paid envelope by Friday March 10, 2006.

Thank you,

Jerome A. Gunderson
701-792-4042
jerome.gunderson@gfschools.org

Dr. Sherryl Houdek Ed.D.
Assistant Professor
701-777-2394
sherryl.houdek@und.nodak.edu

Appendix B
Career and Technical Education Survey 2006

1) Position?
   a) Superintendent b) Principal c) Director of Career and Technical Education

2) What type of CTE program does your school represent?
   a) CTE Consortium b) CTE Area Center c) Comprehensive High School

3) How many students were enrolled in grades 9-12 in your CTE department? (Place a check mark in the appropriate boxes.)

	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Less then a 99						
100 to 299						
300 to 599						
600 +						

4) Since 2001 has the number of your CTE programs changed? (Place a check mark in the appropriate boxes.)

	2001-2002	2002-2003	2003-2004	2004-2005
Increased				
Stayed the same				
Decreased				

5) Since 2001 has the number of your CTE sections changed due to student enrollment? (Place a check mark in the appropriate boxes.)

	2001-2002	2002-2003	2003-2004	2004-2005
Increased				
Stayed the same				
Decreased				

6) Since 2001 has the number of your CTE instructors changed due to student enrollment? (Place a check mark in the appropriate boxes.)

	2001-2002	2002-2003	2003-2004	2004-2005
Increased				
Stayed the same				
Decreased				

7) Since 2001 has the budget for your CTE department changed? (Place a check mark in the appropriate boxes.)

	2001-2002	2002-2003	2003-2004	2004-2005
Increased				
Stayed the same				
Decreased				

8) Since 2001, has your school district devoted more staff, time, money or staff development resources to address the NCLB legislation at the expense of your CTE department? (Place a check mark in the appropriate boxes.)

	2001-2002	2002-2003	2003-2004	2004-2005
Strongly Agree				
Agree				
Undecided				
Disagree				
Strongly Disagree				

Please turn the page over and complete the second page.

9) Since NCLB legislation was enacted in January of 2001 has it affected enrollment your CTE department? (Place a check mark in the appropriate boxes.)

	2001-2002	2002-2003	2003-2004	2004-2005
Strongly Agree				
Agree				
Undecided				
Disagree				
Strongly Disagree				

10) Has the Tech Prep initiative increased enrollment in your CTE department? (The federal Tech Prep program strives to provide seamless a transition between CTE programs from high school to post secondary schools.) (Place a check mark in the appropriate boxes.)

	2001-2002	2002-2003	2003-2004	2004-2005
Strongly Agree				
Agree				
Undecided				
Disagree				
Strongly Disagree				

11) Has the Nontraditional Career initiative increased enrollment your CTE department? (The federal Nontraditional initiative is developed to encourage students to consider careers choices based on interest rather than gender.) (Place a check mark in the appropriate boxes.)

	2001-2002	2002-2003	2003-2004	2004-2005
Strongly Agree				
Agree				
Undecided				
Disagree				
Strongly Disagree				

12) Do you feel that changes have been made in your CTE programs in response to the NCLB legislation? (Place a check mark in the appropriate boxes.)

	2001-2002	2002-2003	2003-2004	2004-2005
Strongly Agree				
Agree				
Undecided				
Disagree				
Strongly Disagree				

13) Has the number of students, representing different subgroups, enrolled in CTE programs been influenced by NCLB legislation? (Place a check mark in the appropriate boxes.)

	Gender	Race	Special Populations	Tech Prep	Nontraditional
Increased					
Remained the same					
Decreased					

14) What do you believe has had the greatest impact on your CTE program since 2001?

Thank you

Please place in the addressed, postage paid envelope and return by March 10th, 2006.

Appendix C
Survey Follow-up Letter

Thank You

Address

Dear

A few weeks ago, you should have received a survey titled Career and Technical Education Survey 2006. You were selected to complete this survey because of your position, experience, and knowledge of the Carl Perkins grant and the Local Consolidated Annual Plans (LCAP) data, which your school district submits to the North Dakota Department of Career and Technical Education.

Please accept my sincere thanks for your participation in this study if you have already returned your survey.

At this point, I have received only 9 surveys out of 20 sent. Due to the small number of schools selected to participate in the survey, and in order to validate the data, the study needs a very high return rate. If you have not already returned your survey, please do so today.

Your response is extremely important to assist with efforts to understand NCLB impact on Career and Technical Education programs in North Dakota.

Thank you.

Jerome Gunderson
Doctoral Candidate

Appendix D
Consent Form

March 20, 2006
LCAP Administrator

Dear

You are invited to participate in a dissertation study being completed by Jerome Gunderson, candidate for a Ph.D., at the University of North Dakota, under the supervision of his advisor, Dr. Sherry Houdek of the University of North Dakota Educational Leadership Department. The purpose of this study is to examine the effects of the NCLB legislation on the elective secondary Career and Technical Education (CTE) programs in North Dakota public schools. In 2001, the federal government passed the No Child Left Behind Act (NCLB) which has caused much discussion and forced changes to many K-12 programs (Phelps, 2003). The legislation was written to address issues in the core academic educational programs such as math, English, science and social studies. CTE programs were not included in the NCLB legislation but due to its relationship in public schools, the programs have been impacted. Your input is important in developing an accurate understanding of the effects of NCLB on local North Dakota CTE programs.

Participation is voluntary. If you choose to participate, there is no compensation and your risks are negligible; however, you will be contributing to the knowledge and understanding of the effects of NCLB on CTE programs in North Dakota.

Any information from this study will remain confidential. All data and consent forms will be kept in separate locked cabinets for a minimum of three years after the completion of this study. Only the researcher, the adviser and people who audit UND IRB procedures will have access to the data. After three years, the data will be shredded. If you do not have access to this data, please give this survey to the appropriate person who can complete the survey.

If you have questions about the research, you may call Jerome Gunderson at 701-792-4042, or Dr. Sherry Houdek at 701-777-2394. If you have any other questions or concerns, please call the UND Research Development and Compliance office at 777-4279, which has approved this study # 200602-221.

The survey should take less than 10 minutes to complete.

Please complete the survey and return it in the addressed, postage paid envelope by Friday March 31, 2006.

Thank you,

Jerome A. Gunderson
701-792-4042
jerome.gunderson@gfschools.org

Dr. Sherryl Houdek Ed.D.
Assistant Professor
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sherryl.houdek@und.nodak.edu

Appendix E
Email Sent to Participants Wednesday April 5th, 2006

Hi

Ok -- One last effort – Over the past month you should have received a survey entitled Career and Technical Education Survey 2006. You were selected to complete this survey because of your position, experience and knowledge of the Carl Perkins grant and the Local Consolidated Annual Plans (LCAP) data, and your work with No Child Left Behind mandates. If someone else is responsible for this information, could you pass on the survey for them to complete it?

I would like to thank all of you who have already returned the survey. Your time and effort are much appreciated.

I understand that your time is precious but due to the small sample size every survey is very important to me and to the validity of the data. Up to this date, I have received 15 surveys out of 20 sent.

If you have not already returned your survey, please do so today (or at the latest by Friday April 14, 2006). Complete either one of the hard copies you have received in the mail or I have attached a word document (Email CTE Survey 2006 file). You can complete it and return to me as well either as a hard copy (address below) or returned as an attachment to an Email.

Your response is extremely important to assist with efforts to understand NCLB impact on Career and Technical Education programs in North Dakota.

Thank you,

Jerome Gunderson
Doctoral Candidate

Hard Copy address:

Jerome Gunderson
915 10th Ave NE
Thompson, ND 58278

Appendix F
Consent Form

April 5, 2006
LCAP Administrator

You are invited to participate in a dissertation study being completed by Jerome Gunderson, candidate for a Ph.D., at the University of North Dakota, under the supervision of his advisor, Dr. Sherry Houdek of the University of North Dakota Educational Leadership Department. The purpose of this study is to examine the effects of the NCLB legislation on the elective secondary Career and Technical Education (CTE) programs in North Dakota public schools. In 2001, the federal government passed the No Child Left Behind Act (NCLB) which has caused much discussion and forced changes to many K-12 programs (Phelps, 2003). The legislation was written to address issues in the core academic educational programs such as math, English, science, and social studies. CTE programs were not included in the NCLB legislation but due to its relationship in public schools, the programs have been impacted. Your input is important in developing an accurate understanding of the effects of NCLB on local North Dakota CTE programs.

Participation is voluntary. If you choose to participate, there is no compensation and your risks are negligible; however, you will be contributing to the knowledge and understanding of the effects of NCLB on CTE programs in North Dakota.

Any information from this study will remain confidential. All data and consent forms will be kept in separate locked cabinets for a minimum of three years after the completion of this study. Only the researcher, the adviser and people who audit UND IRB procedures will have access to the data. After three years, the data will be shredded. If you do not have access to this data, please give this survey to the appropriate person who can complete the survey.

If you have questions about the research, you may call Jerome Gunderson at 701-792-4042, or Dr. Sherry Houdek at 701-777-2394. If you have any other questions or concerns, please call the UND Research Development and Compliance office at 777-4279, which has approved this study # 200602-221.

The survey should take less than 10 minutes to complete.

Please complete the survey and return it in the addressed, postage paid envelope by Friday April 14, 2006.

Thank you,

Jerome Gunderson

Jerome Gunderson
701-792-4042
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Sherryl A. Houdek

Dr. Sherryl Houdek Ed. D
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